Appendix 3.11A
Biological Resource Technical Memorandum

Biological Resource Technical Memorandum – Fenton Site

PREPARED FOR: National Geospatial-Intelligence Agency

PREPARED BY: CH2M HILL

DATE: January 16, 2015

PROJECT NUMBER: 650193.01.06.03.01

Executive Summary

The National Geospatial-Intelligence Agency (NGA) is evaluating potential West Facilities Modernization (WFM) new construction and relocation actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. The Fenton site, hereafter referred to as the "Property," comprises approximately 295 acres of former industrial land in the city of Fenton, in St. Louis County, Missouri. The Property is bounded to the south by North Highway Drive and Interstate 44 (I-44), to the north by Dodge Drive, railroad lines, and the Meramec River, and to the east and west by commercial properties and railroad lines, as shown in the Property location map provided as **Figure 1**.

Twelve federally threatened, endangered, or proposed threatened species and eight state listed species are known to occur in St. Louis County, Missouri. However, no federal or state listed species or designated critical habitat for threatened or endangered species occurs on or in the vicinity of the Fenton site. No effect to federal or state listed species with potential to occur in the area would be expected from the considered action. Additionally, because there is no designated critical habitat on or in the vicinity of the Property, there would be no effect to designated critical habitat from the considered action. As appropriate, coordination with the U.S. Fish and Wildlife Service (USFWS) and Missouri Department of Natural Resources (MDNR) is recommended to confirm this determination.

A stormwater collection basin that flows off the property was observed on the northern boundary. This feature may be regulated under the Clean Water Act (CWA) Section 404 Program and require permitting from the U.S. Army Corps of Engineers (USACE) if the basin is impacted by the site design.

Project Description

To enhance the current missions, improve resiliency, and solve numerous challenges associated with its current South 2nd Street facility in St. Louis, MO, NGA is pursuing a new facility in the greater St. Louis metropolitan area. NGA has evaluated potential WFM expansion actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. In addition, a Site Location Study (SLS) was conducted to identify both government and privately owned real estate sites, or a combination of sites, to serve as replacement facilities for NGA's South 2nd Street operations and personnel.

New construction would likely occur at one of four alternative sites. NGA's overall goal for assessing relocation actions and alternatives is to identify a well-suited, high-quality site that promotes quality workspaces, buildings, and landscapes.

Purpose of the Biological Technical Memorandum

The purpose of this Biological Resource Technical Memorandum (TM) is to provide the government with site-specific information regarding the potential impacts of the project on biological resources, including habitats, federal or state listed threatened or endangered species, and waters of the United States that may result from development of the property. This TM also identifies relevant federal permitting issues related to these resources. This information will be used to support analyses in an environmental impact statement (EIS) for the considered action.

Project Area

A site visit to the Property was conducted on November 19, 2014. The area evaluated encompasses approximately 295 acres (**Figure 1**) bounded to the south by North Highway Drive and Interstate 44 (I-44), to the north by Dodge Drive, railroad lines, and the Meramec River, and to the east and west by commercial properties and railroad lines. A secondary road, Mraz Lane, bisects the Property from north to south.

The Property was formerly an automobile assembly plant owned by the Chrysler Group LLC automotive company. Chrysler closed its North and South Assembly Plants in Fenton in mid-2009 and 2008 respectively, and the facilities were subsequently demolished and removed from the site in 2011, essentially reducing the Property to a large concrete slab. A small area of improved/maintained grass, with some sparsely scattered large trees, extends along the former facility entrance, and a small network of unnamed roads, parking lots, and railroad tracks runs throughout the Property.

Soils

Three soils types, Urban land bottomland, Urban land upland, and Fishpot urban land complex, are present on the Property, as classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) (NRCS, 2014).

The Urban Land classification typically indicates that the area is mostly covered by streets, parking lots, buildings, and other structures typical of urban areas. Generally, soils classified as urban land are gently to strongly sloping, well-drained, and have predominantly clayey subsoil overlying unweathered granitic gneiss rock (NRCS, 2014).

Fishpot urban land complex soil usually occurs on stream terraces and is formed from mine spoil or earthen fill. These soils are somewhat poorly drained and rarely flood. They are considered prime farmland if drained (NRCS, 2014).

Ecological Communities

On November 19, 2014, a survey was conducted by a CH2M HILL biologist to assess the ecological communities of the Property. More than 95 percent of the Property is covered by concrete, asphalt, and gravel. An area consisting of approximately 5 acres of mowed/maintained grass and trees is still present along the previously active facility entrance (**Appendix A**, Photograph 1). Trees species observed at the main entrance, on the southwestern area of the Property, include red maple (*Acer rubrum*), northern red oak (*Quercus rubra*), and eastern red cedar (*Juniperus virginiana*). A row of eastern red cedar trees borders the fenceline near the former site entrance, separated on either side by open space and a highway to the south and an open concrete slab to the north (**Appendix A**, Photograph 2). Amur honeysuckle (*Lonicera maackii*) was identified growing along portions of the fencelines of the site's northern and eastern boundaries. An approximately, 0.25-acre area of vegetation consisting primarily of small amur honeysuckle was observed near the northern boundary. Additionally, an approximately 3-foot by 15-foot patch of cattail (*Typha latifolia*) was observed growing in a drainage depression along a road in the northeastern portion of the Property (**Appendix A,** Photograph 3). No other vegetation was observed within the Property boundary. No animals were observed on the Property.

Wetlands and Other Waters of the United States

Waters of the United States include rivers, streams, ponds, and wetlands that are subject to federal regulation under the CWA. Projects that would result in the loss of waters of the United States, including wetlands, must be permitted through USACE's CWA Section 404 Program. USACE and the U.S. Environmental Protection Agency (USEPA) jointly define wetlands as, "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory, 1987).

A review of the USFWS National Wetland Inventory (NWI) data indicated a 10-acre freshwater pond on the northern boundary of the Property (USFWS, 2014b), but this feature was no longer evident at the time of the site visit. However, an approximately 15-foot by 15-foot subsurface stormwater collection basin was identified on the Property's northern boundary, which appeared to collect stormwater runoff and channel it offsite to the north (**Appendix A**, Photograph 4). The approximate location of the water feature is depicted in **Figure 2**.

The determination of whether the identified water feature is subject to jurisdiction under CWA rests with USACE. Because a water feature was observed on the Property, a protocol wetland delineation should be conducted to identify the boundaries of the feature and a request made to the USACE to conduct a jurisdictional determination to identify if the feature would be subject to CWA regulation. If USACE determines the feature is jurisdictional and would be impacted by the proposed development, then permitting

under CWA Section 404 would be necessary and, depending on the magnitude of the loss of waters of the United States, a mitigation plan may be required to comply with CWA.

Federally Listed Species and Potential Adverse Effects

Species

A review of the USFWS database (USFWS, 2014c) revealed 12 federally threatened, endangered, or proposed listed species known to occur in St. Louis County, Missouri (**Table 1**).

TABLE 1
Federally Threatened, Endangered, or Proposed Listed Species Occurring in St. Louis County, Missouri

Species	Listing Status	Determination
Clams		
Pink mucket (*Lampsilis abrupta*)	Endangered	No effect
Scaleshell mussel (*Lampsilis abrupta*)	Endangered	No effect
Spectaclecase (*Leptodea leptodon*)	Endangered	No effect
Snuffbox mussel (*Epioblasma triquetra*)	Endangered	No effect
Sheepnose mussel (*Plethobasus cyphyus*)	Endangered	No effect
Fishes		
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	No effect
Flowering Plants		
Decurrent false aster (*Boltonia decurrens*)	Threatened	No effect
Mead's milkweed (*Asclepias meadii*)	Threatened	No effect
Running buffalo clover (*Trifolium stoloniferum*)	Endangered	No effect
Mammals		
Gray bat (*Myotis grisescens*)	Endangered	No effect
Indiana bat (*Myotis sodalis*)	Endangered	No effect
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	No effect

Source: (USFWS, 2014c).

No federally threatened, endangered, or proposed listed species were observed during the reconnaissance survey.

No permanent water bodies occur on the Property. Therefore, the pallid sturgeon (*Scaphirhynchus albus*), pink mucket (*Lampsilis abrupta*), scaleshell mussel (*Lampsilis abrupta*), spectaclecase (*Leptodea leptodon*), snuffbox mussel (*Epioblasma triquetra*), and sheepnose mussel (*Plethobasus cyphyus*) would not occur on the Property and they are not further evaluated. Therefore, there is no potential for direct, indirect, or cumulative impacts to these species.

Decurrent false aster (*Boltonia decurrens*) occurs in moist, sandy floodplains and prairie wetlands along the Illinois River and relies on prolonged flooding to maintain suitable habitat conditions to prevent overgrowth

by other plants (USFWS, 2014d). The Property does not provide suitable habitat for decurrent false aster and the species would not occur. Therefore, there is no potential for direct, indirect, or cumulative impacts to this species.

Mead's milkweed occurs primarily in tall grass prairies, in hay meadows, and in thin soil glades or barrens. This plant is restricted to sites that have never been plowed or only lightly grazed, and in hay meadows that are cropped annually (USFWS, 2014e). The Property does not provide suitable habitat for Mead's milkweed and the species would not occur. Therefore, there is no potential for direct, indirect, or cumulative impacts to this species.

Running buffalo clover (*Trifolium stoloniferum*) generally occurs in mesic habitats of partial-to-filtered sunlight where there is a prolonged, moderate periodic disturbance, such as grazing, trampling, or mowing. The species most often occurs in regions underlain with limestone or other calcareous bedrock (USFWS, 2007). Any potential habitat on the Property has been removed, and the remaining grassy area is significantly disturbed and does not provide suitable habitat for running buffalo clover. Therefore, running buffalo clover would not occur and there is no potential for direct, indirect, or cumulative impacts to this species.

The gray bat (*Myotis grisescens*) lives in caves year round, using different caves for summer roosting and winter hibernation (USFWS, 2014f). There are no caves on or near the Property. The gray bat would not hibernate or roost on the Property and there would be no direct, indirect, or cumulative impacts to gray bat hibernacula or bats within hibernacula. The gray bat typically forages along riparian corridors. There is no potential foraging habitat for this species within the Property boundary. There is a thin strip of riparian vegetation adjacent to the property to the north along the Meramec River. The riparian zone is outside of the property boundary and would not be disturbed. Construction activities would likely be confined to daytime hours, so there would be no effect to gray bats foraging in the evening or at night. Because there is no suitable habitat onsite and because the potential foraging habitat adjacent to the property would not be disturbed, there is no potential for direct, indirect, or cumulative impacts to this species.

In summer, the Indiana bat (*Myotis sodalis*) typically roosts under exfoliating bark of snags or live trees, but also will roost in cavities and the angles of broken limbs. Roost trees typically are in open forested areas with little understory development where the tree receives some sun exposure during the day. Preferred habitat includes small-to-medium river and stream corridors with well-developed riparian woods, woodlots within 1 to 3 miles of small-to-medium rivers and streams, and upland forests with open travel corridors. Caves and mines are used by the Indiana bat as hibernacula during the winter months (USFWS, 2014g). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to Indiana bat hibernacula or bats within hibernacula. No potential foraging habitat for this species exists within the Property boundary. Potential summer roosting and foraging habitat occurs within the riparian zone adjacent to the property to the north along the Meramec River. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations

by predators makes this area generally unsuitable for the Indiana bat roosting. The riparian zone along the Meramec River is outside of the property boundary and would not be disturbed. Construction activities would likely be confined to daytime hours, so there would be no effect to Indiana bats foraging along this riparian zone in the evening or at night. Because there is no suitable habitat onsite and because the potential foraging habitat adjacent to the property would not be disturbed, there is no potential for direct, indirect, or cumulative impacts to this species.

Northern long-eared bats (*Myotis septentrionalis*) roost by themselves or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Rarely, northern long-eared bats have been found roosting in vacant structures, such as barns or sheds. During winter months, caves and mines with a constant temperature are used for hibernation (USFWS, 2014h). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to northern long-eared bat hibernacula or bats within hibernacula. No potential foraging habitat for this species is present within the Property boundary. Potential summer roosting and foraging habitat occurs within the riparian zone to the north of the property boundary off-site along the Meramec River. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations by predators makes this area generally unsuitable for northern long-eared bat roosting. The riparian zone is outside of the property boundary and would not be disturbed. Construction activities would likely be confined to daytime hours, so there would be no effect to northern long-eared bats foraging in the evening or at night. Because there is no suitable habitat onsite and because the potential foraging habitat adjacent to the property would not be disturbed, there is no potential for direct, indirect, or cumulative impacts to this species.

State Listed Species and Potential Adverse Effects

Species

A review of the Missouri Department of Conservation's Natural Heritage Program (MDC, 2015a) iodnetified eight additional state threatened or endangered species known to occur in St. Louis County, Missouri (**Table 2**). State listed species that are previously presented in the federally listed species section are not presented again.

TABLE 2
State Threatened or Endangered Species Occurring in St. Louis County, Missouri [a]

Species	State Status	Determination
Clams		
Ebonyshell (*Fusconaia ebena*)	Endangered	No effect
Elephant ear (*Elliptio crassidens*)	Endangered	No effect
Fishes		
Crystal darter (*Crystallaria asprella*)	Endangered	No effect
Flathead chub (*Platygobio gracilis*)	Endangered	No effect

TABLE 2
State Threatened or Endangered Species Occurring in St. Louis County, Missouri [a]

Species	State Status	Determination
Lake Sturgeon (*Acipenser fulvescens*)	Endangered	No effect
Birds		
Peregrine falcon (*Falco peregrinus*)	Endangered	No effect
American bittern (*Botaurus lentiginosus*)	Endangered	No effect
Reptiles		
Eastern hellbender (*Cryptobranchus alleganiensis*)	Endangered	No effect

Source: (MDC, 2015a)

[a] Species previously identified as federally protected also have state status, but are not repeated for this discussion.

No permanent water bodies occur on the Property. Therefore, ebonyshell mussel (*Fusconaia ebena*), elephant ear mussel (*Elliptio crassidens*), crystal darter (*Crystallaria asprella*), flathead chub (*Platygobio gracilis*), lake sturgeon (*Acipenser fulvescens*) or Eastern hellbender (*Cryptobranchus alleganiensis*) would not occur on the Property. Therefore, there is no potential for direct, indirect, or cumulative impacts to these species.

The peregrine falcon (*Falco peregrinus*) requires large open areas to hunt, usually in undeveloped areas with little human disturbance. Nesting often occurs in cliffs. The Property offers no nesting or hunting habitat for the peregrine falcon (MDC, 2015b). The southern forested portion of the property would not be affected by construction activities and is generally unsuitable for peregrine falcon. There is no potential for direct, indirect or cumulative impacts to this species.

American bittern (*Botaurus lentiginosus*) prefers large, undisturbed, freshwater wetlands with tall dense vegetation (MDC, 2015c). There are no wetlands within the property boundary. The property offers no nesting or foraging habitat the American bittern. Therefore, there is no potential for direct, indirect or cumulative impacts to this species.

Designated Critical Habitat

A review of the USFWS critical habitat mapping in Missouri did not identify critical habitat within St. Louis County (USFWS, 2014i). Therefore, no critical habitat would be affected by development or operation of the proposed NGA facility.

General and Species-Specific Protection Measures

General Protection Measures

Following are general environmental measures and best management practices (BMPs) that are common practice to an NGA construction site and will be followed during work on the Property:

- Before construction activity begins, onsite construction personnel will be briefed regarding BMPs.

- The construction contractor will demarcate the project boundaries and keep these boundaries to the smallest area possible.
- Garbage/construction debris is to be managed so that it will not attract nuisance wildlife, and refuse will be removed from the Property or stored in appropriate containers until it is removed.
- Soil erosion and sediment control devices will be used and maintained throughout construction.
- Site planning, design, construction, and maintenance strategies for the Property will be used to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow.
- A soil erosion and sedimentation control plan will be prepared and applicable stormwater permits, such as the National Pollution Discharge Elimination System (NPDES) permit, will be obtained.
- Stormwater will be conveyed to retention ponds that would be used to maintain the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow to meet or exceed state requirements.

Species-Specific Protection Measures

No species-specific protection measures are planned at this time because of the lack of federally listed threatened and endangered species or potentially suitable habitat on the Property.

Conclusions

No federal or state listed species or federally designated critical habitats for federally protected species were identified on or in the vicinity of the Property. Based on the information contained in this TM, the action would not effect any federal or state listed threatened, endangered, or proposed threatened species and for any designated critical habitat.

A wetland delineation should be conducted to identify the boundaries of the water feature identified on the Property that may be regulated under the CWA Section 404 and a request made to the USACE to conduct a jurisdictional determination to identify if the feature would be subject to CWA regulation. If USACE determines the feature is jurisdictional and would be impacted by the proposed development, then permitting under CWA Section 404 would be necessary. If development on the Property will result in loss of waters of the United States, a mitigation plan may be required to comply with CWA.

References

Environmental Laboratory. 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual.*

Missouri Department of Conservation (MDC). 2015a. Missouri Natural Heritage Program; Protected Species List for St. Louis County, MO. http://mdc.mo.gov/your-property/greener-communities/heritage-program/results/county/St%20Louis. Website accessed: February 20, 2015.

Missouri Department of Conservation (MDC). 2015b. Missouri Fish and Wildlife Information System Species Report; Peregrine Falcon (*Falco peregrinus*). http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400063. Website accessed: February 25, 2015.

Missouri Department of Conservation (MDC). 2015c. Fish and Wildlife Information System Species Report;, American Bittern *Botaurus lentiginosus* Species Summary. http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Summary.aspx?id=0400004. Website accessed: February 25, 2015. Natural Resources Conservation Service (NRCS). 2014. Online Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Website accessed on December 2, 2014.

U.S. Fish and Wildlife (USFWS). 2007. Running Buffalo Clover (*Trifolium stoloniferum*) Recovery Plan: First Revision. June.

U.S. Fish and Wildlife Service (USFWS). 2014a. *Guidance for Preparing a Biological Assessment*. http://www.fws.gov/midwest/endangered/section7/ba_guide.html. Website accessed December 3, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014b. National Wetland Inventory Mapping. http://www.fws.gov/wetlands/data/mapper.HTML. Website accessed December 3, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014c. *Federally Listed Threatened and Endangered Species in Missouri*. September. http://www.fws.gov/midwest/endangered/lists/missouri-cty.html. Website accessed on December 4, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014d. Species Profile: Decurrent false aster (*Boltonia decurrens*). July 2014. http://www.fws.gov/midwest/endangered/plants/decurrentfalseaster/index.html. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014e. Species Profile: Mead's milkweed (*Asclepias meadii*). July 2014. http://www.fws.gov/midwest/endangered/plants/meads/index.html. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014f. Gray Bat (*Myotis grisescens*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/grbat_fc.html. July 2014. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014g. Endangered Species: Indiana Bat (*Myotis sodalis*). http://www.fws.gov/midwest/endangered/mammals/inba/index.html. July 2014. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014h. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html. Website accessed December 8, 2014.

U.S.Fish and Wildlife Service (USFWS). 2014i. IPAC-Information, Planning, and Conservation System. http://ecos.fws.gov/ipac. Website accessed December 1, 2014.

Figures

N

0 500 1,000 2,000 Feet

Fenton Site

Next NGA West EIS
St. Louis County, Missouri
280 Sq Acres

Site Boundary

Site Visit Features

Stormwater Detention Basin

NWI Features

Freshwater Forested/Shrub Wetland

Lake

Riverine

Note: A protocol delineation or jurisdictional determination has not been completed for water features identified.

NWI-National Wetlands Inventory
NWI Source: U.S. Fish and Wildlife Service (USFWS)
Image Source: National Agriculture Imagery Progarm (NAIP) 2014

N

0 0.25 0.5 Miles

FIGURE 2
Fenton Site, Wetlands and Surface Features
Biological Resource Report

CH2MHILL

Appendix A
Photo Log

PHOTO LOG

Project Name: National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri	
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 1

Maintained Facility Entrance

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 2

Row of Eastern Red Cedar Trees (*Juniperus virginianna*) at Maintained Entrance

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 3

Approximately 3-Foot x 15-Foot Area of Cattail (*Typha latifolia*)

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 4

General Site Photo, Facing Southwest

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 5

General Site Photo – Southern Portion of Property, Facing West

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 6

General Site Photo of Boundary Line - Northern Boundary, Facing Northeast

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 7

Stormwater Collection Basin and Drain on Northern Boundary, Facing North

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 8

Vegetation Along Northern Boundary (approximately 0.25 acre) – Primarily Amur Honeysuckle (*Lonicera maackii*)

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 9

Maintained Facility Entrance

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 10

Row of Eastern Red Cedar Trees (*Juniperus virginianna*) at Maintained Entrance

Project Name:	National Geospatial-Intelligence Agency – Fenton Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown – November 19, 2014

Photograph 11

Approximately 3-Foot x 15-Foot Area of Cattail (*Typha latifolia*)

Biological Resource Technical Memorandum – Mehlville Site

PREPARED FOR: National Geospatial-Intelligence Agency

PREPARED BY: CH2M HILL

DATE: January 16, 2015

PROJECT NUMBER: 650193.01.06.03.02

Executive Summary

The National Geospatial-Intelligence Agency (NGA) is evaluating potential West Facilities Modernization (WFM) new construction and relocation actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. The Mehlville site, hereafter referred to as the "Property," consists of an existing two-story office structure built for Metropolitan Life in 1976, an associated parking area, and undeveloped land. The Property is located on Tesson Ferry Road in St. Louis County, Missouri, approximately 12 miles south of Interstate 270 (I-270). About 30 percent of the Property, largely south of the office building, is a mature mixed hardwood forested area.

Twelve federally threatened, endangered, or proposed threatened species and eight state listed species are known to occur in St. Louis County, Missouri. No federal or state listed species or designated critical habitat for threatened or endangered species occur on or in the vicinity of the Property. Potential foraging and roosting habitats for the gray bat, Indiana bat, and northern long-eared bat could occur in forested areas within the Property boundary. The considered action could affect the gray bat, Indiana bat, and northern long-eared bat due to the loss of potential habitat. As appropriate, additional coordination with the U.S. Fish and Wildlife Service (USFWS) and Missouri Department of Natural Resources (MDNR) is recommended to determine whether and to what extent impacts to these species may occur. No effects to other federal or state listed species with potential to occur in the area would be expected. Additionally, because there is no designated critical habitat on or in the vicinity of the Property, there would be no effect to designated critical habitat from the considered action.

A small wet area at the base of the overflow dam for the stormwater pond, two perennial streams, and an intermittent stream were observed on the Property. These features may be regulated under the Clean Water Act (CWA) Section 404 Program and require U.S. Army Corps of Engineers (USACE) permitting if impacted by the site design. A protocol wetland delineation should be conducted to identify the boundaries of these features and a request made to USACE to conduct a jurisdictional determination to identify which features would be subject to regulation.

Project Description

To enhance the current missions, improve resiliency, and solve numerous challenges associated with its current 2nd Street facility in St. Louis, MO, NGA is pursuing a new facility in the St. Louis metropolitan area. NGA has evaluated potential WFM expansion actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. In addition, a Site Location Study (SLS) was conducted to identify both government and privately owned real estate sites, or a combination of sites to serve as replacement facilities for NGA's St. Louis area operations and personnel. New construction would likely occur at one of four alternative sites. NGA's overall goal for assessing relocation actions and alternatives is to identify a well-suited, high-quality site that promotes quality workspaces, buildings, and landscapes.

Purpose of the Biological Resource Technical Memorandum

The purpose of this Biological Resource Technical Memorandum (TM) is to provide the government with site-specific information regarding the potential impacts of the project on biological resources, including habitats, federally listed threatened or endangered species, and waters of the United States that may result from development of the property. This TM also identifies relevant federal permitting issues related to these resources. This information will be used to support analyses in an environmental impact statement (EIS) for the considered action.

Project Area

A site visit to the Property was conducted on December 16, 2014. The area evaluated is a slightly graded, approximately 100-acre site with an existing 645,520-square-foot, two-story office building (Figure 1). The Property is located east of Keller Road, west of Tesson Ferry Road, north of a residential housing neighborhood, and south of Bauer Road in the city of St. Louis, St. Louis County, Missouri. The Property location is approximately centered on 38°29'33.18"N latitude, 90° 23'12.29"W longitude in the World Geodetic System 84 projection. Photographs of the Property are provided in Appendix A.

Approximately 70 percent of the Property consists of an office complex, associated parking lots containing nearly 1,900 parking spaces, 5-acre stormwater pond, improved grounds with landscaping, and several human-made ephemeral drainage channels. A perennial stream flows through a small portion of the northern corner of the Property, north of the office building.

Approximately 30 percent of the Property is a mature hardwood forested area with a dense understory. In the forested area to the south, a ponded wetland was observed at an overflow dam from the stormwater pond, as well as a perennial stream flowing from the eastern boundary towards the southwestern boundary, a short intermittent stream, and several ephemeral channels.

Soils

The soils underlying the Property are classified as Urban land-harvester complex (2 to 9 percent slopes), Crider-Menfro silt loams (14 to 30 percent slopes), and Menfro silt loam (5 to 9 and 14 to 20 percent slopes) (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS], 2014).

Urban land-harvester complex consists of moderately well-drained soils formed from loess parent material on interfluves and summits (NRCS, 2014).

Crider-Menfro silt loams are well-drained soils formed from loess over residuum weathered from dolomite parent material and found on hillslopes. Crider-Menfro silt loams do not frequently flood or pond and are not classified as prime farmland.

Menfro silt loams are well-drained soils formed from loess parent material on interfluves, summits, or shoulders. Menfro silt loams do not frequently flood or pond and are classified as prime farmland and farmland of statewide importance.

Ecological Communities

On December 16, 2014, a CH2M HILL biologist conducted a survey to assess the ecological communities of the Property. Approximately 70 percent of the Property consists of a 645,520-square-foot, two-story office building, associated parking lots, and maintained grounds. The remaining 30 percent of the Property, located both south and southwest of the office structure, is forested. Forest canopy consists of mature mixed hardwood trees over a full understory. Tree species observed include red maple (*Acer rubrum*), northern red oak (*Quercus rubra*), white oak (*Quercus alba*), American sycamore (*Platanus occidentalis*), black locust (*Robinia pseudoacacia*), common hackberry (*Celtis occidentalis*), and American elm (*Ulmus americana*). The understory consists primarily of amur honeysuckle (*Lonicera maackii*), Japanese honeysuckle (*Lonicera japonica*), muscadine grape (V*itis rotundifolia*), and sapling-aged versions of the mature trees.

Open areas on the Property consist of asphalt parking lots, maintained lawns and landscaping, and an approximately 5-acre pond. No herbaceous plant species were identified due to winter conditions at the time of the survey.

Animals noted on the Property through both observation and listening included the American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*), and several unknown birds. A tenant of the Property stated that white-tailed deer (*Odocoileus virginianus*), coyote, (*Canis latrans*), and wild turkey (*Meleagris gallopavo*) are often observed on the Property.

Wetlands and Other Waters of the United States

Waters of the United States include rivers, streams, ponds, and wetlands that are subject to federal regulation under the CWA. Projects that would result in the loss of waters of the United States, including wetlands, must be permitted through the USACE CWA Section 404 program. The USACE and U.S. Environmental Protection Agency (USEPA) jointly define wetlands as, “Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory, 1987).

A review of USFWS National Wetland Inventory (NWI) data indicated a 3.07-acre freshwater pond on the Property (USFWS, 2014c), which was confirmed as a stormwater detention pond during the site visit conducted on December 16, 2014. Two perennial streams, an intermittent stream, and multiple ephemeral drainage channels that appeared to be human-made were also identified on the Property. In addition, a small wet area was observed at the base of the overflow dam for the detention pond. Water features observed on the property are depicted in Figure 2.

Features identified on the Property that may be regulated under the CWA Section 404 Program included:

- A small wet area at the base of the overflow dam for the stormwater pond (Photograph 3, Appendix A);
- A natural perennial stream north of the office building that flows across the corner of the property boundary through the forested area to the south (Photograph 1, Appendix A);
- A natural perennial stream that flows from the eastern boundary southwest of the Property boundary through the forested area in the southern portion of the Property; and
- One intermittent stream that appears to be a tributary of the perennial stream south of the Property.

The apparently human-made ephemeral drainages or swales that were identified during the site visit are not presented in Appendix A because they are unlikely to be regulated under the CWA Section 404 program.

The determination of whether identified water features are subject to jurisdiction under the CWA lies with USACE. Because water features were observed on the Property, a protocol wetland delineation should be conducted to identify the boundaries of these features as well as a request to USACE to conduct a jurisdictional determination to identify which features would be subject to CWA regulation. If any features determined to be jurisdictional by USACE would be impacted by the proposed development, then permitting under Section 404 of the CWA would be necessary and, depending on the magnitude of the loss of waters of the United States, a mitigation plan may be required to comply with CWA.

Federally Listed Species

Species

A review of the USFWS database (USFWS, 2014b) identified 12 federally threatened, endangered, or proposed listed species known to occur in St. Louis County, Missouri (Table 1).

TABLE 1
Federally Listed Threatened, Endangered, or Proposed Listed Species Occurring in St. Louis County, Missouri

Species	Listing Status	Determination
Clams		
Pink mucket (*Lampsilis abrupta*)	Endangered	No effect
Scaleshell mussel (*Leptodea leptodon*)	Endangered	No effect
Spectaclecase (*Cumberlandia monodonta*)	Endangered	No effect

TABLE 1
Federally Listed Threatened, Endangered, or Proposed Listed Species Occurring in St. Louis County, Missouri

Species	Listing Status	Determination
Snuffbox mussel (*Epioblasma triquetra)*	Endangered	No effect
Sheepnose mussel (*Plethobasus cyphyus*)	Endangered	No effect
Fishes		
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	No effect
Flowering Plants		
Decurrent false aster (*Boltonia decurrens*)	Threatened	No effect
Mead's milkweed (*Asclepias meadii*)	Threatened	No effect
Running buffalo clover (*Trifolium stoloniferum*)	Endangered	No effect
Mammals		
Gray bat (*Myotis grisescens*)	Endangered	May affect, not likely to adversely affect
Indiana bat (*Myotis sodalis*)	Endangered	May affect, not likely to adversely affect
Northern long-eared bat (*Myotis septentrionalis*)	Proposed Endangered	May affect, not likely to adversely affect

Source: (USFWS, 2014b).

No federally threatened, endangered, or proposed listed species were observed during the reconnaissance survey.

Pink mucket, spectaclecase, and sheepnose mussels typically inhabit large rivers with strong currents and occasionally occur in reaches with river and lake conditions (USFWS, 2014d; USFWS, 2014e; USFWS, 2014f). Snuffbox mussels also typically inhabit areas with strong currents in small-to-medium-sized creeks (USFWS, 2014g). There is no potential for direct, indirect, or cumulative impacts to these species. Scaleshell mussels also inhabit high-quality, medium-to-large rivers with a gravel or mud substrate and moderate current velocity. They are often found in areas where a high diversity of other mussel species are found. Additionally, scaleshell mussels require freshwater drum (*Aplodiniotus grunniens*) to complete a parasitic phase of their life cycle (USFWS, 2010). Due to the size, low velocity, and poor quality of the streams, there is no habitat in the streams within the Property boundary that would likely support any of the listed mussel species known to occur in St. Louis County. Because these species would not occur on the Property, there is no potential for direct, indirect, or cumulative impacts to these species.

Stream features on the property are not large enough to support any large fish species, including the endangered pallid sturgeon. Because this species would not occur on the Property, there is no potential for direct, indirect, or cumulative impacts to the species.

Decurrent false aster (*Boltonia decurrens*) occurs in moist, sandy floodplains and prairie wetlands along the Illinois River and relies on prolonged flooding to maintain suitable habitat conditions to prevent overgrowth by other plants (USFWS, 2014h). The Property does not provide suitable habitat for decurrent false aster. Therefore, this species would not occur and there is no potential for direct, indirect, or cumulative impacts to this species.

Mead's milkweed (*Asclepias meadii*) occurs primarily in tall grass prairies, in hay meadows, and in thin soil glades or barrens. This plant is restricted to sites that have never been plowed and that have been only lightly grazed, and hay meadows that are cropped annually (USFWS, 2014i). The Property has been significantly disturbed and developed, and does not provide suitable habitat for Mead's milkweed. Therefore, the species would not occur and there is no potential for direct, indirect, or cumulative impacts to this species.

Running buffalo clover (*Trifolium stoloniferum*) generally occurs in mesic habitats of partial to filtered sunlight, where there is a prolonged moderate periodic disturbance, such as grazing, trampling, or mowing. This species most often occurs in regions underlain with limestone or other calcareous bedrock (USFWS, 2007a). The Property has been largely developed, which paired with landscaping, grading, and chemical management over the course of several decades, leaves the grounds significantly disturbed and unable to provide suitable habitat for running buffalo clover. Therefore, this species would not occur and there is no potential for direct, indirect, or cumulative impacts to running buffalo clover.

The Gray bat (*Myotis grisescens*) lives in caves year round, using different caves for summer roosting and winter hibernation (USFWS, 2014j). There are no caves on or near the Property. The gray bat would not hibernate or roost on the Property and there would be no direct, indirect, or cumulative impacts to gray bat hibernacula or bats within hibernacula. The gray bat typically forages along riparian corridors and potential foraging habitat for this species occurs within the forested area onsite. Small sections of the forested area had open understory to the south and could be potentially suitable for foraging. However, the dense understory vegetation in a majority of the forested area indicates most of the habitat within the onsite forested area would be generally unsuitable for gray bat foraging due to the lack of flight corridors. Therefore, indirect impacts to this species could be expected. Because use of the site by the gray bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential foraging habitat of low quality, no cumulative impacts to this species would be expected.

In summer, the Indiana bat (*Myotis sodalis*) typically roosts under exfoliating bark of snags or live trees, but also will roost in cavities and the angles of broken limbs. Roost trees typically are in open forested areas with little understory development where the tree receives some sun exposure during the day. Preferred habitat includes small-to-medium river and stream corridors with well-developed riparian woods, woodlots within 1 to 3 miles of small-to-medium rivers and streams, and upland forests with open travel corridors. Caves and mines are used by the Indiana bat as hibernacula during the winter months (USFWS, 2007b; USFWS, 2014k).

Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to Indiana bat hibernacula or bats within hibernacula. Potential roosting and foraging habitat occurs within the forested areas on site. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations by predators, makes this area generally unsuitable for the Indiana bat roosting. Small forested areas of with open understory were observed in the southern portion of the property and could provide potentially suitable habitat for foraging or roosting. Therefore indirect impacts to this species could occur. Because use of the site by the Indiana bat for roosting or foraging cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

Northern long-eared bats (*Myotis septentrionalis*) roost by themselves or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Rarely, northern long-eared bats have been found roosting in vacant structures, such as barns or sheds. During winter months, caves and mines with a constant temperature are used for hibernation (USFWS, 2014l). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to northern long-eared bat hibernacula or bats within hibernacula. Small forested areas of with open understory were observed in the southern portion of the property and could provide potentially suitable habitat for roosting and foraging. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations by predators, in a majority of the forested area makes most of this area generally unsuitable for the northern long-eared bat roosting or foraging. No direct impacts to this species would be expected. Because use of the site by the northern long-eared bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

State Listed Species and Potential Adverse Effects

Species

A review of the Missouri Department of Conservation's Natural Heritage Program (MDC, 2015) identified eight additional state threatened or endangered species known to occur in St. Louis County, Missouri (**Table 2**). State listed species that are previously presented in the federally listed species section are not presented again.

TABLE 2
State Threatened or Endangered Species Occurring in St. Louis County, Missouri [a]

Species	Listing Status	Determination
Clams		
Ebonyshell mussel (*Fusconaia ebena*)	Endangered	No effect
Elephantear mussel (*Elliptio crassidens*)	Endangered	No effect
Fishes		
Crystal darter (*Crystallaria asprella*)	Endangered	No effect
Flathead chub (*Platygobio gracilis*)	Endangered	No effect
Lake Sturgeon (*Acipenser fulvescens*)	Endangered	No effect
Birds		
Peregrine falcon (*Falco peregrinus*)	Endangered	No effect
American bittern (*Botaurus lentiginosus*)	Endangered	No effect
Reptiles		
Eastern Hellbender (*Cryptobranchus alleganiensis*)	Endangered	No effect

Source: (MDC, 2015a)

[a] Species previously identified as federally protected also have state status, but are not repeated for this discussion.

Ebonyshell mussel (*Fusconaia ebena*) , elephantear mussel (*Elliptio crassidens*), crystal darter (*Crystallaria asprella*), flathead chub (*Platygobio gracilis*), lake sturgeon (*Acipenser fulvescens*) and Eastern hellbender (*Cryptobranchus alleganiensis*) typically inhabit large rivers or streams with strong currents. Due to the size, low velocity, and poor quality of the streams, there is no habitat in the streams within the Property boundary that would likely support any of the listed mussel species known to occur in St. Louis County. Because these species would not occur on the Property, there is no potential for direct, indirect, or cumulative impacts to these species.

The peregrine falcon (*Falco peregrinus*) requires large open areas to hunt, usually in undeveloped areas with little human disturbance. Nesting often occurs in cliffs (MDC, 2015b). The Property offers no nesting or hunting habitat for the peregrine falcon. There is no potential for direct, indirect or cumulative impacts to this species.

American bittern (*Botaurus lentiginosus*) prefers large, undisturbed, freshwater wetlands with tall dense vegetation (MDC, 2015c). There was one wet area observed within the property. The wet area was very small, isolated and of low quality located within a surrounding developed metro area. The property offers no nesting or foraging habitat the American bittern. Therefore, there is no potential for direct, indirect or cumulative impacts to this species.

Designated Critical Habitat

A review of the USFWS critical habitat mapping in Missouri determined no critical habitat has been designated on the Property or within St. Louis County (USFWS, 2014l). Therefore, no critical habitat would be affected by development or operation of a proposed NGA facility. There would be no direct, indirect, or cumulative impacts to designated critical habitat.

General and Species-Specific Protection Measures

General Protection Measures

The following are general environmental measures and best management practices (BMPs) that are common practice to NGA development sites are recommended for implementation during work on the Property to further minimize the potential for impacts to biological resources:

- Before construction activity begins, onsite construction personnel will be briefed regarding BMPs.
- The construction contractor will demarcate the project boundaries and keep these boundaries to the smallest area possible.
- Garbage/construction debris is to be managed so that it will not attract nuisance wildlife, and refuse will be removed from the Property or stored in appropriate containers until it is removed.
- Soil erosion and sediment control devices will be used and maintained throughout construction.
- Site planning, design, construction, and maintenance strategies for the Property will be used to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow.
- A soil erosion and sedimentation control plan will be prepared and applicable stormwater permits, such as the National Pollution Discharge Elimination System (NPDES) permit, will be obtained.
- Stormwater will be conveyed to retention ponds that would be used to maintain the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow to meet or exceed state requirements.

Species-Specific Protection Measures

No species-specific protection measures are planned at this time because of the lack of federally listed threatened and endangered species or potentially suitable habitat on the Property.

Conclusions

No federal or state listed species or designated critical habitat for threatened or endangered species occur on or in the vicinity of the Property. Limited potential foraging habitat for gray bat, Indiana bat and northern long-eared bat and potential roosting habitat for gray bat, Indiana bat, and northern long-eared bat occur in the more open forested areas within the Property boundary. Based on the information contained in this TM, this action could affect the gray bat, Indiana bat, and northern long-eared bat due to the loss of potential habitat.

No effects to other federally listed species with potential to occur in the area would be expected. As appropriate, additional coordination with the USFWS and MDNR is recommended to determine whether and to what extent impacts to these species may occur.

A wetland delineation should be conducted to identify the boundaries of water features identified on the Property that may be regulated under the CWA Section 404 Program and require USACE permitting if impacted by the site design. Additionally, a request made to the USACE to conduct a jurisdictional determination to identify which features would be subject to regulation. If development on the Property will result in loss of waters of the United States, a mitigation plan may be required to comply with CWA.

References

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual.

Missouri Department of Conservation. 2015. Missouri Natural Heritage Program; Protected Species List for St. Louis County, MO. http://mdc.mo.gov/your-property/greener-communities/heritage-program/results/county/St%20Louis. Website accessed: February 20, 2015.

Missouri Department of Conservation (MDC). 2015b. Missouri Fish and Wildlife Information System Species Report; Peregrine Falcon (*Falco peregrinus*). http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400063. Website accessed: February 25, 2015.

Missouri Department of Conservation (MDC). 2015c. Fish and Wildlife Information System Species Report;, American Bittern (*Botaurus lentiginosus)* Species Summary. http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Summary.aspx?id=0400004. Website accessed: February 25, 2015.

Natural Resources Conservation Service (NRCS). 2014. Online web soil survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Website accessed on December 2, 2014.

U.S. Fish and Wildlife (USFWS). 2007a. Running Buffalo Clover (*Trifolium stoloniferum*) Recovery Plan: First Revision. June.

U.S. Fish and Wildlife Service (USFWS). 2007b. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. April.

U.S. Fish and Wildlife Service (USFWS). 2010. Scaleshell Mussel Recovery Plan (*Leptodea leptodon*). February.

U.S .Fish and Wildlife Service (USFWS). 2014b. *Federally Listed Threatened and Endangered Species in Missouri*. September. http://www.fws.gov/midwest/endangered/lists/missouri-cty.html. Website accessed on December 8, 2014.

U.S .Fish and Wildlife Service (USFWS). 2014c. National Wetland Inventory Mapping. http://www.fws.gov/wetlands/data/mapper.html. Website accessed December 22, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014d. Pink Mucket (*Lamplilis orbiculata*) Fact Sheet. http://www.fws.gov/midwest/endangered/clams/pinkm_fc.html. Website accessed December 8, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014e. Spectaclecase (*Cumberlandia monodonta*) Fact Sheet. http://www.fws.gov/midwest/endangered/clams/spectaclecase/SpectaclecaseFactSheetMarch2012.html. Website accessed December 8, 2014

U.S. Fish and Wildlife Service (USFWS). 2014f. Endangered Species: Sheepnose (a freshwater mussel) (*Plethobasus cyphyus*) Fact Sheet. http://www.fws.gov/midwest/endangered/clams/sheepnose/ SheepnoseFactSheetMarch2012.html. Website accessed December 22, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014g. Snuffbox (*Epioblasma triquetra*) Fact Sheet. http://www.fws.gov/Midwest/endangered/clams/snuffbox/index.html. Website accessed December 22, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014h. Species Profile: Decurrent false aster (*Boltonia decurrens*). http://www.fws.gov/midwest/endangered/plants/decurrentfalseaster/index.html. July. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014i. Species Profile: Mead's milkweed (*Asclepias meadii*). July 2014. http://www.fws.gov/midwest/endangered/plants/meads/index.html. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014j. Gray Bat (*Myotis grisescens*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/grbat_fc.html. July. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014k. Endangered Species: Indiana Bat (*Myotis sodalis*). http://www.fws.gov/midwest/endangered/mammals/inba/index.html. July. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014k. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html. Website accessed December 8, 2014.

U.S .Fish and Wildlife Service (USFWS). 2014l. IPAC-Information, Planning, and Conservation System.http://ecos.fws.gov/ipac. Website accessed December 22, 2014.

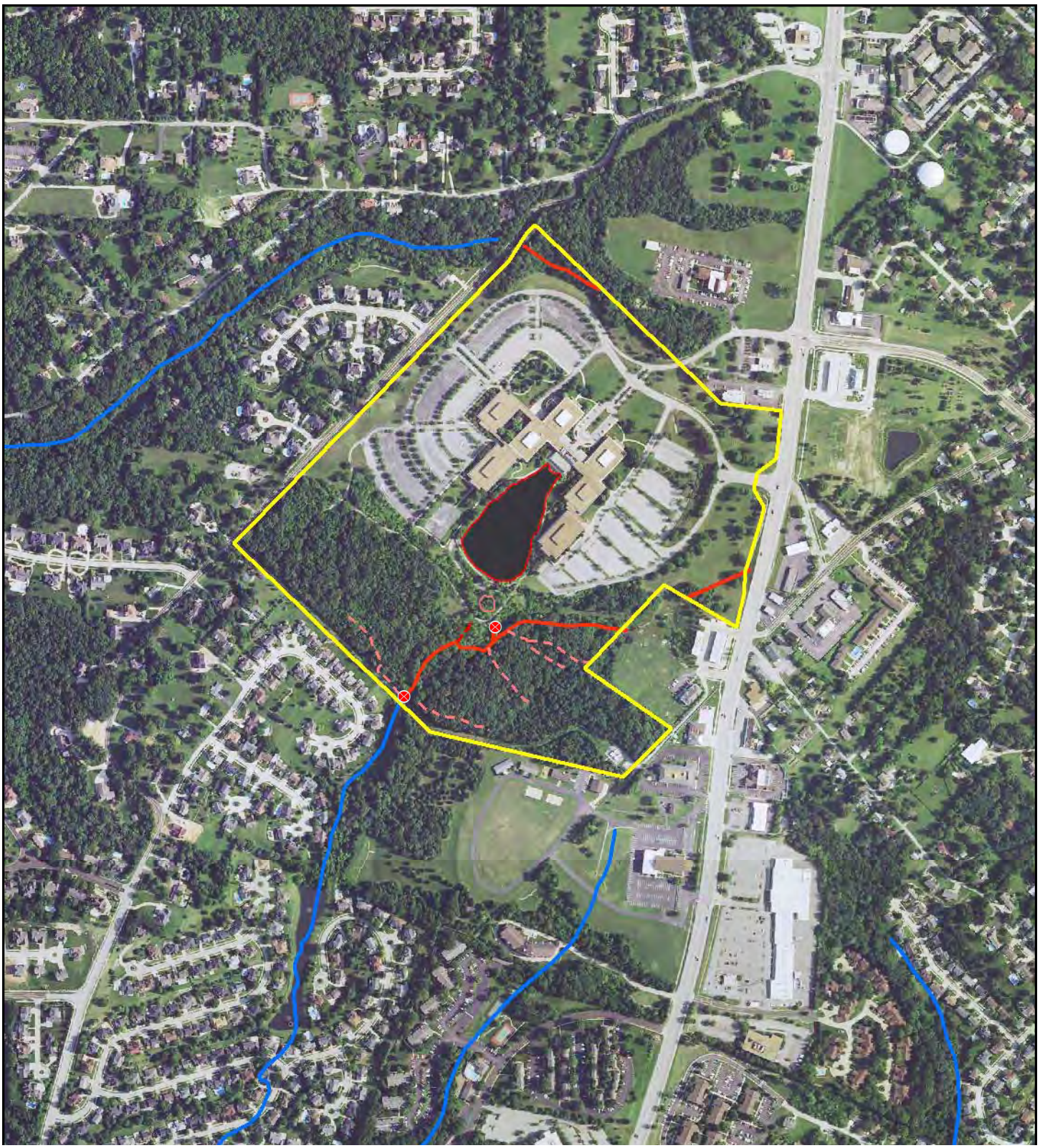
Figures

N

0 500 1,000 2,000 Feet

Mehlville Site

Next NGA West EIS
St. Louis County, Missouri
101 Sq Acres



Site Boundary

NHD Features:
- Stream River

Site Visit Features:
- Perennial Stream
- Intermittent Stream
- Ephemeral Drainage

Site Visit Features:
- Stormwater Pond
- Wetland
- Culvert

NHD- National Hydrography Dataset
NHD Source: U.S. Geological Survey (USGS)
Image Source: National Agriculture Imagery Program (NAIP) 2014

N

0 0.1 0.2 0.3 Miles

Note: A protocol delineation or jurisdictional determination has not been completed for water features identified.

FIGURE 2
Mehlville Site, Wetlands and Surface Features
Biological Resource Report

CH2MHILL

Appendix A
Photo Log

PHOTO LOG

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 1

Perennial Stream 1 (Upstream) – In Forested Area

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 2

Stormwater Pond

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 3

Ponded Wetland Area at Base of Overflows

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 4

General Site Photo for Forested Area

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 5

Drainage Channels and Culverts

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 6

General Site Photo for Forested Area

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 7

Perennial Stream 2 (Upstream) – In Forested Area

Project Name:	National Geospatial-Intelligence Agency – Mehlville Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Elizabeth Jorgenson – December 16, 2014

Photograph 8

Ephemeral Channel (Upstream) – In Forested Area

Biological Resource Technical Memorandum – St. Louis City Site

PREPARED FOR: National Geospatial-Intelligence Agency

PREPARED BY: CH2M HILL

DATE: January 16, 2015

PROJECT NUMBER: 650193.01.06.03.03

Executive Summary

The National Geospatial-Intelligence Agency (NGA) is evaluating potential West Facilities Modernization (WFM) new construction and relocation actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. The NorthSide site (hereafter referred to as the "Property") is comprised of multiple residential parcels located northeast of Cass Avenue and North Jefferson Street, and northwest of Cass Avenue and North 22nd Street, in the city of St. Louis in St. Louis County, Missouri. The Property consists of approximately 120 acres of previously and currently developed residential properties, as shown on the Property location map presented in **Figure 1**.

Twelve federally threatened, endangered, or proposed threatened species and eight state listed species known to occur in St. Louis County, Missouri. However, no federal or state listed species or designated critical habitat for threatened or endangered species occurs on or in the vicinity of the Property. The considered action may affect the gray bat, Indiana bat, and northern long-eared bat due to the loss of potential habitat. As appropriate, additional coordination with the U.S. Fish and Wildlife Service (USFWS) and Missouri Department of Natural Resources (MDNR) is recommended to determine whether and to what extent impacts to these species may occur. No effects to other federally listed species with potential to occur in the area would be expected. Additionally, because there is no designated critical habitat on or in the vicinity of the Property, there would be no effect to designated critical habitat from the considered action.

No water features were found on the Property with potential to be regulated under the Clean Water Act (CWA) Section 404 Program and require permitting from the U.S. Army Corps of Engineers (USACE).

Project Description

To enhance the current missions, improve resiliency, and solve numerous challenges associated with its current 2nd Street facility in St. Louis, MO, NGA is pursuing a new facility in the St. Louis metropolitan area. NGA has evaluated potential WFM expansion actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. In addition, a Site Location Study (SLS) has been conducted to identify both government and privately owned real estate sites, or a combination of sites, to

serve as replacement facilities for NGA's South 2nd Street operations and personnel. New construction would likely occur at one of four alternative sites. NGA's overall goal for assessing relocation actions and alternatives is to identify a well-suited, high-quality site that promotes quality workspaces, buildings, and landscapes.

Purpose of the Biological Resource Technical Memorandum

The purpose of this Biological Resource Technical Memorandum (TM) is to provide the government with site-specific information regarding the potential impacts of the project on biological resources, including habitats, federal or state listed threatened or endangered species, and waters of the United States that may result from development of the property. This TM also identifies relevant federal permitting issues related to these resources. This information will be used to support analyses in an environmental impact statement (EIS) for the considered action.

Project Area

A site visit to the Property was conducted on November 18, 2014. The area evaluated encompasses approximately 120 acres northeast of Cass Avenue and North Jefferson Street, and northwest of Cass Avenue and North 22nd Street, in St. Louis, St. Louis County, Missouri (**Figure 1**). The Property location is approximately centered on 38°38'58.88"N latitude, 90° 12'29.07"W longitude in the World Geodetic System 84 projection. Photographs of the Property are provided in **Appendix A**.

The Property has been developed for residential and commercial uses, and formerly was an affordable housing area. Numerous residences within the Property have been demolished or abandoned, but a number of active residences and small businesses remain. Many of the vacant residential lots have been converted into urban farm plots. The Property is gridded with secondary neighborhood roads running from north to south, intersecting with roads running from east to west. The southern portion of the Property is bounded by the historical site of the Pruitt-Igoe affordable housing project. The Pruitt-Igoe complex is fenced and was not accessible at the time of site reconnaissance. However, it was evident that much of this area is now overgrown with dense patches of vegetation. A large forested area of both deciduous and coniferous trees, shrubs, and other plants is present on the north and east sides of the complex, and trees and vegetation have overgrown the fences on the east, west, and north sides.

Soils

The soils underlying the Property are classified as Urban land-harvester complex and urban land, upland (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS], 2014).

Urban land-harvester complex consists of moderately well-drained soils formed from loess parent material on interfluves and summits (NRCS, 2014).

The Urban land classification typically indicates that the area is mostly covered by streets, parking lots, buildings, and other structures of urban areas. Generally, soils classified as urban land are gently-to-strongly

sloping, well-drained, and consist of predominantly clayey subsoil overlying unweathered granitic gneiss rock (NRCS, 2014).

Ecological Communities

On November 18, 2014, a CH2M HILL biologist conducted a survey to assess the ecological communities of the Property. Vegetation at the site has been historically maintained within the housing area, and most Property parcels had been recently mowed at the time of reconnaissance survey. Mature trees were sparsely scattered throughout the Property in most of the residential yards. Tree species observed included red maple (*Acer rubrum*), box elder (*Acer negundo*), northern red oak (*Quercus rubra*), pin oak (*Quercus palustris*), American sycamore (*Platanus occidentalis*), eastern red cedar (*Juniperus virginiana*), and flowering dogwood (*Cornus florida*).

Many of the vacant parcels have been converted to urban farm plots used for growing corn, and Johnsongrass (*Sorghum halepense*) was observed growing in converted farm plot areas. At the time of the site investigation, most farm plots appeared to have been harvested for the year. Other vacant parcels and improved grounds were covered with recent snowfall.

The Pruitt-Igoe parcel was fenced and inaccessible. Observations from the perimeter of the area determined dominant tree species to be red maple, box elder, northern red oak, and American Sycamore. The understory cover was dense and consisted primarily of amur honeysuckle (*Lonicera maackii*).

Animals noted on the Property through observation and listening included American robin (*Turdus migratorius*) and northern cardinal (*Cardinalis cardinalis*).

Wetlands and Other Waters of the United States

Waters of the United States include rivers, streams, ponds, and wetlands that are subject to federal regulation under CWA. Projects that would result in the loss of waters of the United States, including wetlands, must be permitted through USACE's CWA Section 404 Program. USACE and the U.S. Environmental Protection Agency (USEPA) jointly define wetlands as, "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory, 1987).

A review of the USFWS National Wetland Inventory (NWI) map did not indicate wetlands on Property (USFWS, 2014c). CH2M HILL performed a Wetland Assessment of the Property on November 18, 2014, and no wetlands, waterbodies, or other surface waters were observed.

Federally Listed Species

Species

A review of the USFWS database (USFWS, 2014b) revealed 12 federally threatened, endangered, or proposed threatened species known to occur in St. Louis County, Missouri (**Table 1**).

TABLE 1
Federally Listed Threatened, Endangered, or Proposed Threatened Species Occurring in St. Louis County, Missouri

Species	Listing Status	Determination
Clams		
Pink mucket (*Lampsilis abrupta*)	Endangered	No effect
Scaleshell mussel (*Leptodea leptodon*)	Endangered	No effect
Spectaclecase (*Cumberlandia monodonta*)	Endangered	No effect
Snuffbox mussel (*Epioblasma triquetra*)	Endangered	No effect
Sheepnose mussel (*Plethobasus cyphyus*)	Endangered	No effect
Fishes		
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	No effect
Flowering Plants		
Decurrent false aster (*Boltonia decurrens*)	Threatened	No effect
Mead's milkweed (*Asclepias meadii*)	Threatened	No effect
Running buffalo clover (*Trifolium stoloniferum*)	Endangered	No effect
Mammals		
Gray bat (*Myotis grisescens*)	Endangered	May affect, not likely to adversely affect
Indiana bat (*Myotis sodalis*)	Endangered	May affect, not likely to adversely affect
Northern long-eared bat (Myotis septentrionalis)	Threatened	May affect, not likely to adversely affect

Source: (USFWS, 2014b).

No federally threatened, endangered, or proposed threatened species were observed during the reconnaissance survey.

No permanent water bodies occur on the Property; the pallid sturgeon (*Scaphirhynchus albus*), pink mucket (*Lampsilis abrupta*), scaleshell mussel (*Lampsilis abrupta*), spectaclecase (*Leptodea leptodon*), snuffbox mussel (*Epioblasma triquetra*), and sheepnose mussel (*Plethobasus cyphyus*) would not occur on the Property. There is no potential for direct, indirect, or cumulative impacts to these species.

Decurrent false aster (*Boltonia decurrens*) occurs in moist, sandy floodplains and prairie wetlands along the Illinois River, and relies on prolonged flooding to maintain suitable habitat conditions to prevent overgrowth by other plants (USFWS, 2014e). The Property does not provide suitable habitat for decurrent false aster. Therefore, this species would not occur, and there is no potential for direct, indirect, or cumulative impacts to the decurrent false aster.

Mead's milkweed occurs primarily in tall grass prairies, in hay meadows, and in thin soil glades or barrens. This plant is restricted to sites that have never been plowed and only lightly grazed, and in hay meadows that are cropped annually (USFWS, 2014f). The Property does not provide suitable habitat for Mead's milkweed.

Therefore, this species would not occur, and there is no potential for direct, indirect, or cumulative impacts to the Mead's milkweed.

Running buffalo clover (*Trifolium stoloniferum*) generally occurs in mesic habitats of partial-to-filtered sunlight where there is a prolonged moderate periodic disturbance, such as grazing, trampling, or mowing. The species most often occurs in regions underlain with limestone or other calcareous bedrock (USFWS, 2007). Historically, the Property has been developed and redeveloped over the course of several decades in combination with landscaping, grading, and chemical management that have left the grounds significantly disturbed and unable to provide suitable habitat for running buffalo clover. Therefore, this species would not occur, and there is no potential for direct, indirect, or cumulative impacts to running buffalo clover.

The gray bat (*Myotis grisescens*) lives in caves year round, using different caves for summer roosting and winter hibernation (USFWS, 2014g). There are no caves on or near the Property. The gray bat would not hibernate or roost on the Property and there would be no direct, indirect, or cumulative impacts to gray bat hibernacula or bats within hibernacula. The gray bat typically forages along riparian corridors and potential foraging habitat for this species occurs within the forested Pruitt-Igoe portion of the Property. However, densely overgrown understory vegetation that lacked flight corridors was clearly evident from offsite, and indicates that the habitat within the Pruitt-Igoe complex would be generally unsuitable for gray bat foraging. No direct impacts to this species would be expected. However, because use of the Property by the gray bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

In summer, the Indiana bat (*Myotis sodalis*) typically roosts under exfoliating bark of snags or live trees, but will also roost in cavities and the angles of broken limbs. Roost trees typically are in open forested areas with little understory development, where the tree receives some sun exposure during the day. Preferred habitat includes small-to-medium river and stream corridors with well-developed riparian woods, woodlots within 1 to 3 miles of small-to-medium rivers and streams, and upland forests with open travel corridors. Caves and mines are used by the Indiana bat as hibernacula during the winter months (USFWS, 2014h). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to Indiana bat hibernacula or bats within hibernacula. Potential roosting and foraging habitats occur within the forested Pruitt-Igoe portion of the Property. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations by predators, makes this area generally unsuitable for the Indiana bat roosting. Therefore, this species is unlikely to occur, and no direct impacts to this species would be expected. Because use of the site by the Indiana bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Abandoned buildings on the Property were not entered or examined for presence or absence of

bats. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

Northern long-eared bats (*Myotis septentrionalis*) roost by themselves or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Rarely, northern long-eared bats have been found roosting in vacant structures such as barns or sheds. During winter months, caves and mines with a constant temperature are used for hibernation (USFWS, 2014i). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to northern long-eared bat hibernacula or bats within hibernacula. Potential roosting and foraging habitats occur within the forested Pruitt-Igoe portion of the Property. However, the densely overgrown understory, which inhibits flight corridors and provides greater access to potential roost locations by predators, makes this area generally unsuitable for the northern long-eared bat roosting. Therefore, the species is unlikely to occur, and no direct impacts to this species would be expected. Because use of the site by the northern long-eared bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Abandoned buildings on the Property were not entered or examined for presence or absence of bats. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

State Listed Species and Potential Adverse Effects

Species

A review of the Missouri Department of Conservation's Natural Heritage Program (MDC, 2015a) identified eight additional state threatened or endangered species known to occur in St. Louis County, Missouri (**Table 2**). State listed species that are previously presented in the federally listed species section are not presented again.

TABLE 2
State Threatened or Endangered Species Occurring in St. Louis County, Missouri [a]

Species	State Status	Determination
Clams		
Ebonyshell (*Fusconaia ebena*)	Endangered	No effect
Elephant ear (*Elliptio crassidens*)	Endangered	No effect
Fishes		
Crystal darter (*Crystallaria asprella*)	Endangered	No effect
Flathead chub (*Platygobio gracilis*)	Endangered	No effect
Lake Sturgeon (*Acipenser fulvescens*)	Endangered	No effect
Birds		
Peregrine falcon (*Falco peregrinus*)	Endangered	No effect
American bittern (*Botaurus lentiginosus*)	Endangered	No effect

TABLE 2
State Threatened or Endangered Species Occurring in St. Louis County, Missouri [a]

Species	State Status	Determination
Reptiles		
Eastern Hellbender (*Cryptobranchus alleganiensis*)	Endangered	No effect

Source: (MDC, 2015a)

[a] Species previously identified as federally protected also have state status, but are not repeated for this discussion.

No permanent water bodies were identified on the Property. Therefore, ebony shell (*Fusconaia ebena*), elephant ear (*Elliptio crassidens*), crystal darter (*Crystallaria asprella*), flathead chub (*Platygobio gracilis*), lake sturgeon (*Acipenser fulvescens*) or Eastern hellbender (*Cryptobranchus alleganiensis*) would not occur on the Property. Therefore, there is no potential for direct, indirect, or cumulative impacts to these species.

The peregrine falcon (*Falco peregrinus*) requires large open areas to hunt, usually in undeveloped areas with little human disturbance (MDC, 2015b). Nesting often occurs in cliffs. The only forested area in the southern portion of the property is surrounded by a developed urban setting and offers no nesting or hunting habitat for the peregrine falcon. There is no potential for direct, indirect or cumulative impacts to this species.

American bittern (*Botaurus lentiginosus*) prefers freshwater wetlands with tall dense vegetation (MDC, 2015c). There are no wetlands within the property boundary and very limited vegetation other than sparsely planted mature trees to near the southern entrance. The property offers no nesting or foraging habitat the American bittern. Therefore, there is no potential for direct, indirect or cumulative impacts to this species.

Designated Critical Habitat

A review of the USFWS critical habitat mapping in Missouri determined that no critical habitat has been designated within the Property or in St. Louis County (USFWS, 2014d) and, therefore, no critical habitat would be affected by development or operation of a proposed NGA facility. Thus, there would be no direct, indirect, or cumulative impacts to designated critical habitat.

General and Species-Specific Protection Measures

General Protection Measures

The following are general environmental measures and best management practices (BMPs) that are common practice to NGA development sites and will be followed during work on the Property:

- Before construction activity begins, onsite construction personnel will be briefed regarding BMPs.
- The construction contractor will demarcate the project boundaries and keep these boundaries to the smallest area possible.
- Garbage/construction debris is to be managed so that it will not attract nuisance wildlife, and refuse will be removed from the Property or stored in appropriate containers until it is removed.
- Soil erosion and sediment control devices will be used and maintained throughout construction.

- Site planning, design, construction, and maintenance strategies for the Property will be used to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow.
- A soil erosion and sedimentation control plan will be prepared and applicable stormwater permits, such as the National Pollution Discharge Elimination System (NPDES) permit, will be obtained.
- Stormwater will be conveyed to retention ponds that would be used to maintain the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow to meet or exceed state requirements.

Species-Specific Protection Measures

No species-specific protection measures are planned at this time because of the absence of federally listed threatened and endangered species or potentially suitable habitat on the Property.

Conclusions

No federal or state listed species or federally designated critical habitats for federally protected species were identified on or in the vicinity of the Property. Based on the information contained in this TM, this action could affect the gray bat, Indiana bat, and northern long-eared bat due to the loss of potential habitat. No effects to other federal or state listed species with potential to occur in the area would be expected. As appropriate, additional coordination with the USFWS and MDNR is recommended to determine whether and to what extent impacts to these species may occur.

References

Environmental Laboratory. 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*.

Natural Resources Conservation Service (NRCS). 2014. Online web soil survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Website accessed on December 2, 2014.

Missouri Department of Conservation. 2015a. Missouri Natural Heritage Program; Protected Species List for St. Louis County, MO. http://mdc.mo.gov/your-property/greener-communities/heritage-program/results/county/St%20Louis. Website accessed: February 20, 2015.

Missouri Department of Conservation (MDC). 2015b. Missouri Fish and Wildlife Information System Species Report; Peregrine Falcon (*Falco peregrinus*). http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Detail.aspx?id=0400063. Website accessed: February 25, 2015.

Missouri Department of Conservation (MDC). 2015c. Fish and Wildlife Information System Species Report; American Bittern (*Botaurus lentiginosus)* Species Summary. http://mdc4.mdc.mo.gov/applications/mofwis/Mofwis_Summary.aspx?id=0400004. Website accessed: February 25, 2015.

U.S. Fish and Wildlife (USFWS) 2007. Running Buffalo Clover (*Trifolium stoloniferum*) Recovery Plan: First Revision. June.

U.S. Fish and Wildlife Service (USFWS). 2014a. *Guidance for Preparing a Biological Assessment*. http://www.fws.gov/midwest/endangered/section7/ba_guide.html. Website accessed December 3, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014b. *Federally Listed Threatened and Endangered Species in Missouri*. September 30. http://www.fws.gov/midwest/endangered/lists/missouri-cty.html. Website accessed on December 4, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014c. National Wetland Inventory mapping. http://www.fws.gov/wetlands/data/mapper.HTML. Website accessed December 3, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014d. IPAC-Information, Planning, and Conservation System. http://ecos.fws.gov/ipac. Website accessed December 1, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014e. Species Profile: Decurrent false aster (*Boltonia decurrens*). July 2014. http://www.fws.gov/midwest/endangered/plants/decurrentfalseaster/index.html. Website accessed December 4, 2014.

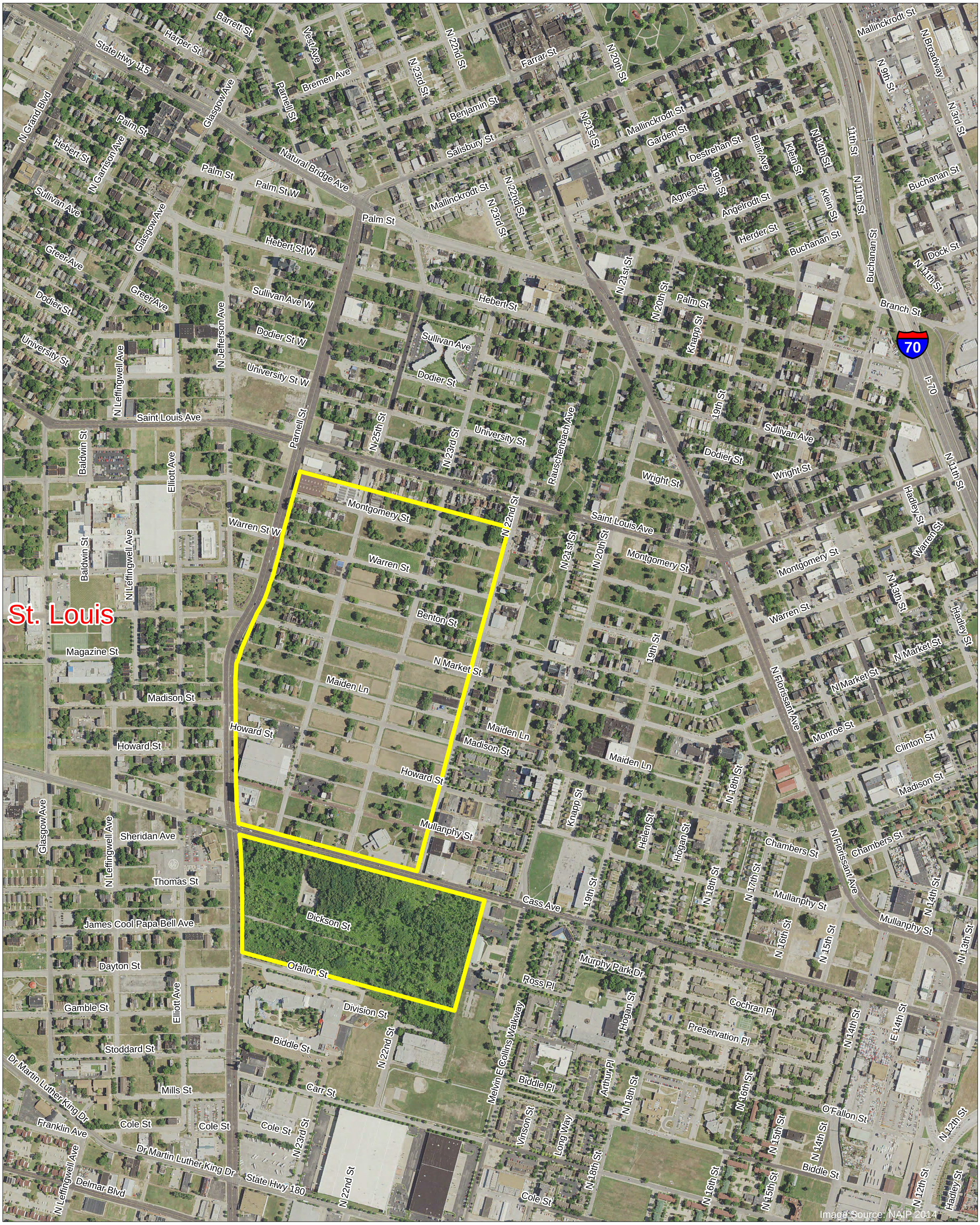
U.S. Fish and Wildlife (USFWS). 2014f. Species Profile: Mead's milkweed (*Asclepias meadii*). July 2014. Website accessed December 4, 2014. http://www.fws.gov/midwest/endangered/plants/meads/index.html

U.S. Fish and Wildlife (USFWS). 2014g. Gray Bat (*Myotis grisescens*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/grbat_fc.html. July 2014. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014h. Endangered Species: Indiana Bat (*Myotis sodalis*). http://www.fws.gov/midwest/endangered/mammals/inba/index.html. July 2014. Website accessed December 4, 2014.

U.S. Fish and Wildlife (USFWS). 2014i. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html. Website accessed December 8, 2014.

Figure



N

0 250 500 1,000 Feet

North St. Louis City Site

Next NGA West EIS
St. Louis City, Missouri
136 Sq Acres

Appendix A
Photo Log

PHOTO LOG

Project Name: National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri	
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 1

Urban Farm Plot (harvested corn) North 22nd Street, Facing West

Project Name:	National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 2

Unmaintained Urban Farm Plot (corn) Benton Street, Facing North

Project Name:	National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 3

Example: Abandoned Building Surrounded with Mature Trees

Project Name:	National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 4

Example: Open Urban Area at Abandoned Property

Project Name:	National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 5

Pruitt-Igoe Site, Facing South

Project Name:	National Geospatial-Intelligence Agency – St. Louis City Site, St. Louis County, Missouri
Task: Biological Resource Report	Taken by: Jesse Brown –November 18, 2014

Photograph 6

Pruitt-Igoe Site, Facing North

Biological Resource Technical Memorandum – St. Clair County, Illinois Site

PREPARED FOR: National Geospatial-Intelligence Agency

PREPARED BY: CH2M HILL

DATE: January 16, 2015

PROJECT NUMBER: 650193.01.06.03.05

Executive Summary

The National Geospatial-Intelligence Agency (NGA) is evaluating potential West Facilities Modernization (WFM) new construction and relocation actions to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. The St. Clair County, Illinois site, hereafter referred to as the "Property," is comprised of multiple parcels of agricultural land south and west of Wherry Road, north of Scott Air Force Base (AFB) and the installation's Cardinal Creek Golf Course, and east of Illinois Route 158 (Illinois 158) in the city of Belleville in St. Clair County, Illinois. The Property consists of approximately 225 acres of agricultural and forested land.

Seven federally threatened, endangered, or proposed threatened species are known to occur in St. Clair County, Illinois. No federally listed species or designated critical habitat for threatened or endangered species occur on or in the vicinity of the Property. Potential foraging and roosting habitats for Indiana bat and northern long-eared bat could occur in forested areas within the Property boundary. The considered action may affect Indiana bat and northern long-eared bat due to the loss of potential habitat. Additional coordination with the U.S. Fish and Wildlife Service (USFWS) is recommended to determine whether and to what extent impacts to these species may occur. No effects to other federally listed species with potential to occur in the area would be expected. Additionally, because there is no designated critical habitat on or in the vicinity of the Property, there would be no effect to designated critical habitat from the considered action.

Two perennial streams and a pond were observed on the Property. These features may be regulated under the Clean Water Act (CWA) Section 404 Program and require permitting from the U.S. Army Corps of Engineers (USACE) if site design would result in impacts. A protocol wetland delineation should be conducted to identify the boundaries of these features and a request made to USACE to conduct a jurisdictional determination to identify which features would be subject to regulation.

Project Description

To enhance the current missions, improve resiliency, and solve numerous challenges associated with its current 2nd Street facility in St. Louis, MO, NGA is pursuing a new facility in the St. Louis metropolitan area.

NGA has evaluated potential WFM expansion actions at the existing Facility Program Office in Arnold, Missouri, to accommodate relocation of personnel and operations from its South 2nd Street facility in St. Louis, Missouri. In addition, a Site Location Study (SLS) was conducted to identify both government and privately owned real estate sites, or a combination of sites, to serve as replacement facilities for NGA's South 2nd Street operations and personnel. New construction would likely occur at one of four alternative sites. NGA's overall goal for assessing relocation actions and alternatives is to identify a well-suited, high-quality site that promotes quality workspaces, buildings, and landscapes.

Purpose of the Biological Resource Technical Memorandum

The purpose of this Biological Resource Technical Memorandum (TM) is to provide the government with site-specific information regarding the potential impacts of the project on biological resources, including habitats, federally listed threatened or endangered species, and waters of the United States that may result from development of the property. This TM also identifies relevant federal permitting issues related to these resources. This information will be used to support analyses in an environmental impact statement (EIS) for the considered action.

Project Area

A site visit to the Property was conducted on November 17, 2014. The area evaluated encompasses approximately 225 acres south and west of Wherry Road, north of Scott AFB and the base's Cardinal Creek Golf Course, and east of Illinois 158 in the city of Belleville in St. Clair County, Illinois (**Figure 1**). The Property location is approximately centered on 38°33'35.05"N latitude, 89° 51'39.67"W longitude in the World Geodetic System 84 projection. Photographs of the Property are provided in **Appendix A**.

The Property is currently used as agricultural land with sparse forested areas along a stream and in thin tracts that separate agricultural fields. Scott AFB and the installation's Cardinal Creek Golf Course bound the Property to the south. A driving range associated with the golf course is included within the Property boundary, and an approximately 1-acre freshwater pond is located near the northern boundary of Wherry Road. A perennial stream flows generally north to south in the western portion of the Property and connects with a tributary that flows from outside the western boundary and joins the main channel near the southern boundary before flowing off the Property.

Soils

The soils underlying the Property are classified as Menfro silt loam (2-5, 5-10, and 10-18 percent slopes), Bethalto silt loam, Downsouth silt loam (2-5 and 5-10 percent slopes), Edwardsville silt loam, Mascoutah silty clay loam, Winfield silt loam (2-5 and 5-10 percent slopes), and Wakeland silt loam (U.S. Department of Agriculture Natural Resources Conservation Service [NRCS], 2014).

Menfro silt loams are well-drained soils formed from loess parent material on interfluves, summits, or shoulders. Menfro silt loams do not frequently flood or pond and are classified as prime farmland and farmland of statewide importance.

Bethalto silt loams are somewhat poorly drained soils that occur on ground moraines and summits. These soils do not frequently flood or pond and are classified as prime farmland if drained.

Downsouth silt loams are moderately well-drained soils that occur on ground moraines, summits, and shoulders and backslopes. Downsouth silt loams are not classified as prime farmland.

Edwardsville silt loams are somewhat poorly drained soils that occur on ground moraines. Edwardsville silt loams are classified as prime farmland and do not frequently flood or pond.

Mascoutah silty clay loams are formed from loess parent material and occur in depressions and on ground moraines. Mascoutah silty clay loams are poorly drained, frequently pond, but do not frequently flood. These soils are considered prime farmland if drained.

Winfield silt loams are formed from loess parent material and occur on loess hills and summits. These soils are moderately well drained and do not frequently flood or pond. Winfield silt loams are classified as prime farmland of statewide importance.

Wakeland silt loams are derived from silty alluvium, frequently flooded, and occur on flood plains. These soils are somewhat poorly drained and are considered prime farmland if drained and either protected from flooding or flooded during the growing season (NRCS, 2014).

Ecological Communities

On November 17, 2014, a CH2M HILL biologist conducted a survey to assess the ecological communities of the Property. Approximately 80 percent of the Property is maintained agricultural land. Forested areas within the boundary lie along Wherry Road at the northern boundary, along the stream that flows from the northern boundary to southern boundary and west as the stream branches near southwest portion of the Property, and in a thin stand of trees separating agricultural plots. Forest canopy consists of mature mixed hardwood trees over a full understory. Tree species observed include red maple (*Acer rubrum*), box elder (*Acer negundo*), northern red oak (*Quercus rubra*), pin oak (*Quercus palustris*), white oak (*Quercus alba*), American sycamore (*Platanus occidentalis*), American hophornbeam (*Ostrya virginiana*), sweetgum (*liquidambar styraciflua*), cottonwood (*Populus deltoides*), and green ash (*Fraxinus pennsylvanica*). The understory consists primarily of amur honeysuckle (*Lonicera maackii*), eastern red cedar (*Juniperus virginiana*), and American hophornbeam.

Open areas on the Property are maintained agricultural fields that had recently been harvested at the time of survey. An approximately 3-inch layer of snow covered the ground at that time, and no herbaceous plant species were identified due to the conditions.

Animals noted on the Property through observation and listening include the American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*), and mourning dove (*Zenaida macroura*). Multiple sets of white-tailed deer (*Odocoileus virginianus*) tracks were observed on the Property.

Wetlands and Other Waters of the United States

Waters of the United States include rivers, streams, ponds, and wetlands that are subject to federal regulation under the CWA. Projects that would result in the loss of waters of the United States, including wetlands, must be permitted through USACE's CWA Section 404 Program. USACE and the U.S. Environmental Protection Agency (USEPA) jointly define wetlands as, "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory, 1987).

A review of the USFWS National Wetland Inventory (NWI) map indicated a 0.87-acre freshwater pond on the Property (USFWS, 2014a). During a site visit on November 17, 2014, the pond recorded on the NWI data was confirmed. Additionally, a moderate-quality perennial stream was identified on the western portion of the Property flowing beneath Wherry Road on the northern boundary and flowing off the Property to the south towards Cardinal Creek Golf Course. A small perennial tributary to the stream flows from the western edge of the Property along the southern boundary and joins with the main channel and continues to flow south. The stream's top-of-bank to top-of-bank width was approximately 30 feet, with a width at the ordinary high water mark of approximately 15 feet. The stream contains riffle and run complexes with clear water and substrate consisting of silt cobbles. Human-made drainages were observed throughout the agricultural portions of the Property, and all of the agricultural drainages are ephemeral with a width and depth of approximately 1 foot. Water features observed on the Property are depicted in Figure 2.

Features identified on the Property that may be regulated under the CWA Section 404 Program included the following:

- A natural perennial stream flowing beneath Wherry Road on the northern boundary and flowing off the Property to the south towards Cardinal Creek Golf Course; and
- A perennial tributary to the stream flowing from the western edge of the Property along the southern boundary, then joining with the main channel and continuing to flow south.

The determination of whether identified water features are subject to jurisdiction under CWA rests with USACE. Because water features were observed on the Property, a protocol wetland delineation should be conducted to identify the boundaries of these features and a request made to USACE to conduct a jurisdictional determination to identify which features would be subject to CWA regulation. If any features determined to be jurisdictional by USACE would be impacted by the proposed development, then permitting

under CWA Section 404 would be necessary and, depending on the magnitude of the loss of waters of the United States, a mitigation plan may be required to comply with CWA.

Federally Listed Species

Species

A review of the USFWS database (USFWS, 2014b) revealed eight federally threatened, endangered, or proposed species for listing known to occur in St. Clair County, Illinois (**Table 1**).

TABLE 1
Federally Listed Threatened, Endangered, or Proposed Species for Listing Occurring in St. Clair County, Illinois

Species	Listing Status	Determination
Crustaceans		
Illinois cave amphipod (*Gammarus acherondytes*)	Endangered	No effect
Fishes		
Pallid Sturgeon (*Scaphirhynchus albus*)	Endangered	No effect
Flowering Plants		
Decurrent false aster (*Boltonia decurrens*)	Threatened	No effect
Eastern prairie fringed orchid (*Platanthera leucophaea*)	Threatened	No effect
Mammals		
Indiana bat (*Myotis sodalis*)	Endangered	May affect, not likely to adversely affect
Northern long-eared bat (*Myotis septentrionalis*)	Threatened	May affect, not likely to adversely affect
Birds		
Least tern (*Sterna antillarum*)	Endangered	No effect

Source: (USFWS, 2014b).

No federally threatened, endangered, or proposed listed species were observed during the reconnaissance survey.

The Illinois cave amphipod occurs in the dark zones of cave streams in areas of the Salem Plateau of Illinois plains (USFWS, 2002). They have been documented to occur in six cave systems in Monroe and St. Clair Counties, IL. There are no caves or karst on the subject property. The Property does not provide suitable habitat for the Illinois cave amphipod and the species would not occur. Thus, there is no potential for direct, indirect, or cumulative impacts to the species.

Stream features on the property are not large enough to support any large fish species, including the endangered pallid sturgeon. If the site were developed, construction stormwater Best Management Practices (BMPs) would put in place to prevent downstream impacts from stormwater runoff. Because this species would not occur on the Property, and no off-site impacts would be expected from development, there is no potential for direct, indirect, or cumulative impacts to the species.

Decurrent false aster (*Boltonia decurrens*) occurs in moist, sandy floodplains and prairie wetlands along the Illinois River and relies on prolonged flooding to maintain suitable habitat conditions to prevent overgrowth by other plants (USFWS, 2014c). The Property does not provide suitable habitat for decurrent false aster. Therefore, this species would not occur and there is no potential for direct, indirect, or cumulative impacts to this species.

Eastern prairie fringed orchid (*Platanthera leucophaea*) is found in wetlands such as marsh edges, sedge meadows, and occasionally bogs receiving full sun full. Grassy habitat with minimal or no woody encroachment also support Eastern prairie fringed orchid. (USFWS, 2014d). The Property does not provide suitable habitat for Eastern prairie fringed orchid as the open areas that could provide habitat for the species are actively used for agriculture. Therefore, this species would not occur and there is no potential for direct, indirect, or cumulative impacts to this species.

In summer, the Indiana bat (*Myotis sodalis*) typically roosts under exfoliating bark of snags or live trees, but also will roost in cavities and the angles of broken limbs. Roost trees typically are in open forested areas with little understory development, where the tree receives some sun exposure during the day. Preferred habitat includes small-to-medium river and stream corridors with well-developed riparian woods, woodlots within 1 to 3 miles of small-to-medium rivers and streams, and upland forests with open travel corridors. Caves and mines are used by the Indiana bat as hibernacula during the winter months (USFWS, 2007b; USFWS, 2014e). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to Indiana bat hibernacula or bats within hibernacula. Potential roosting and foraging habitat occurs within the forested areas onsite. However, the well-developed and dense understory makes this area generally unsuitable for the Indiana bat roosting. No direct impacts to this species would be expected. Because use of the site by the Indiana bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

Northern long-eared bats (*Myotis septentrionalis*) roost by themselves or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Rarely, northern long-eared bats have been found roosting in vacant structures, such as barns or sheds. During winter months, caves and mines with a constant temperature are used for hibernation (USFWS, 2014f). Because there are no caves, this species would not hibernate on the Property and there would be no direct, indirect, or cumulative impacts to northern long-eared bat hibernacula or bats within hibernacula. Potential roosting and foraging habitat occurs within the forested areas onsite. However, the well-developed and dense understory makes this area generally unsuitable for the northern long-eared bat roosting. No direct impacts to this species would be expected. Because use of the site by the northern long-eared bat cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any

impacts would be limited to a minor reduction in potential habitat of very low quality, no cumulative impacts to this species would be expected.

The Least Tern (*Sterna antillarum*) typically breeds in the Mississippi and Missouri River systems, and typically remains close to the rivers. Sparsely vegetated sandbars are used for nesting, rearing young, and relaxing (USFWS 2013). The Property does not occur along the Mississippi or Missouri rivers and the onsite stream does not have sandbars suitable habitat for the least tern. This species would not occur, and there is no potential for direct, indirect, or cumulative impacts to the least tern.

State Listed Species

Species

TABLE 1
State Listed Species Occurring in St. Clair County, Illinois

Species	Listing Status	Determination
Crustaceans		
Isopod (*Caecidotea spatulata*)	Endangered	No effect
Hydrobiid cave snail (*Fontigens antroecetes*)	Endangered	No effect
Birds		
Short-eared owl (*Asio flammeus*)	Endangered	No effect
Northern harrier (*Circus cyaneus*)	Endangered	No effect
Little blue heron (*Egretta caerulea*)	Endangered	No effect
Snowy egret (*Egretta thula*)	Endangered	No effect
Common moorhen (*Gallinula chloropus*)	Endangered	No effect
Least Bittern (*Ixobrychus exilis*)	Threatened	No effect
Loggerhead Shrike (*Lanius ludovicianus*)	Endangered	May adversely affect
Yellow-crowned night heron (*Nyctanassa violacea*)	Endangered	No effect
Black-crowned night heron (*Nycticorax nycticorax*)	Endangered	No effect
Barn owl (*Tyto alba*)	Endangered	May adversely affect
Flowering Plants		
Buffalo clover (*Trifolium reflexum*)	Threatened	No effect
Green trillium (*Trillium viride*)	Endangered	No effect

There are no caves or karst on the subject property. The Property does not provide suitable habitat for the isopod (*Caecidotea spatulata*) and the hydrobiid cave snail (*Fontigens antroecetes*)**,** therefore these species would not occur. Thus, there is no potential for direct, indirect, or cumulative impacts to the species.

Both short-eared owls (*Asio flammens*) and northern harriers (*Circus cyaneus*) rely on large areas of grassland and marshes for habitat. Nests identified in Illinois have been concentrated in grassland/marsh areas greater than 250 acres. Mowing, haying and other agricultural practices destroy nests and discourage nesting (Walk, 2008). The Property and the adjacent areas do not contain large areas of grassland or marsh. There is no suitable habitat for these species and they would not occur. There is no potential for direct, indirect, or cumulative impacts to these species.

The little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), yellow-crowned night-heron (*Nyctanassa violacea*), black-crowned night-heron (*Nycticorax nycticorax*), least bittern (*Ixobrychus exilis*), and the common moorhen (*Gallinula chloropus*) rely heavily on wetlands including large freshwater ponds, marshes, lakes large streams for foraging to support their primarily fish diet. Nests are often in wooded areas in proximity to wetland foraging areas. Most of these species are only migrants or transient visitors in southern Illinois and would not likely reside throughout the year (INHS, 2015a-f). The little blue heron was the only species of this group identified on the adjacent Scott AFB property during a recent bird survey, where potentially suitable habitat is present (USAF, 2012). There are no wetlands on the Property large enough to provide suitable habitat for these species. These species would not occur, and there is no potential for direct, indirect, or cumulative impacts.

Loggerhead shrikes (*Lanius ludovicianus*) occur in southern Illinois throughout the year as a common resident in open areas with thorny shrub/brush habitats. This species also nests in mature oaks or cedars (INHS, 2015g). Wooded portions of the Property could provide potential nesting habitat for the loggerhead shrike and the species could forage over the agricultural fields. Because use of the Property by the loggerhead shrike cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Clearing vegetation would remove potential nesting habitat for the loggerhead shrike and development of the Property would eliminate potential foraging habitat. Incidental mortality could also occur if clearing occurs during nesting season.

Barn Owls (*Tyto alba*) typically use habitats associated with agricultural areas and open grasslands. These birds nest in tree cavities and abandoned buildings or other man-made structures (Walk et.al, 2010). Limited potential nesting habitat occurs within the forested area of the Property and the agricultural areas on the Property provide potential foraging habitat. Because use of the Property by the barn owl cannot be ruled out, indirect impacts from habitat modification as a result of proposed construction activities could occur. Because there would be no direct impacts and because any impacts would be limited to a minor reduction in potential nesting habitat of very low quality and foraging habitat. Incidental mortality could also occur if clearing occurs during nesting season.

Buffalo clover (*Trifolium reflexum*) occurs in open-canopied dry forests that typically experience human disturbances, such as prescribed burning (USDA, 2015). Much of the Property has been developed for agriculture, which does not provide suitable habitat for buffalo clover. The wooded portions of the Property

are closed-canopy and do not experience disturbances that would create open-canopy conditions. The wooded portions of the Property are unsuitable to support buffalo clover. Because there is no potentially suitable habitat, this species would not occur on the Property and there is no potential for direct, indirect, or cumulative impacts to buffalo clover.

Designated Critical Habitat

A review of the USFWS critical habitat mapping in Illinois determined no critical habitat has been designated on the Property or within St. Clair County (USFWS, 2014g). Therefore, no critical habitat would be affected by development or operation of a proposed NGA facility, and there would be no direct, indirect, or cumulative impacts to designated critical habitat.

General and Species-Specific Protection Measures

General Protection Measures

The following are general environmental measures and (BMPs) that are common practice to NGA development sites and will be followed during work on the Property:

- Before construction activity begins, onsite construction personnel will be briefed regarding BMPs.
- The construction contractor will demarcate the project boundaries and keep these boundaries to the smallest area possible.
- Garbage/construction debris is to be managed so that it will not attract nuisance wildlife, and refuse will be removed from the Property or stored in appropriate containers until it is removed.
- Soil erosion and sediment control devices will be used and maintained throughout construction.
- Site planning, design, construction, and maintenance strategies for the Property will be used to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow.
- A soil erosion and sedimentation control plan will be prepared and applicable stormwater permits, such as the National Pollution Discharge Elimination System (NPDES) permit, will be obtained.
- Stormwater will be conveyed to retention ponds that would be used to maintain the predevelopment hydrology of the Property with regard to the temperature, rate, volume, and duration of flow to meet or exceed state requirements.
- Pre-disturbance/land clearing bird surveys are recommended if land clearing is to be conducted during the nesting season.

Species-Specific Protection Measures

Soil erosion and sediment control devices will be used and maintained throughout construction to protect the stream from runoff and maintain water quality to limit adverse affect to any potential Niangua darter habitat.

Conclusions

No federally listed species or federally designated critical habitats for federally protected species were identified on or in the vicinity of the Property. The considered action may affect the Indiana bat and northern long-eared bat due to the loss of potential habitat. No effects to other federally listed species with potential to occur in the area would be expected. Additional coordination with USFWS is recommended to determine whether and to what extent impacts to these species may occur.

A wetland delineation should be conducted to identify the boundaries of water features identified on the Property that may be regulated under CWA Section 404 and a request made to the USACE to conduct a jurisdictional determination to identify which features would be subject to CWA regulation. If any features determined to be jurisdictional by USACE would be impacted by the proposed development, then permitting under CWA Section 404 would be necessary. If development on the Property will result in loss of waters of the United States, a mitigation plan may be required to comply with CWA.

References

Environmental Laboratory. 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual.*

Illinois Natural History Survey (INHS). 2015b. Prairie Research Institute: Little Blue Heron (*Egretta caerulea*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds. Website accessed. March, 25, 215.

Illinois Natural History Survey (INHS). 2015c. Prairie Research Institute: Snowy Egret (*Egretta thula*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds. Website accessed. March 25, 2015.

Illinois Natural History Survey (INHS). 2015d. Prairie Research Institute: Yellow-Crowned Night-Heron (*Nyctanassa violacea*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds.Website accessed. March 25, 2015.

Illinois Natural History Survey (INHS). 2015e. Prairie Research Institute: Black-Crowned Night-Heron (*Nycticorax nycticorax*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds.Website accessed. March 25, 2015.

Illinois Natural History Survey (INHS). 2015f. Prairie Research Institute: Least Bittern (*Ixobrychus exilis*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds.Website accessed. March 25, 2015.

Illinois Natural History Survey (INHS). 2015g. Prairie Research Institute: Common Moorhen (*Gallinula chloropus*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds/37/. Website accessed. March 25, 2015.

Illinois Natural History Survey (INHS). 2015h. Prairie Research Institute: Loggerhead Shrike (*Lanius ludovicianus*). http://wwx.inhs.illinois.edu/collections/birds/ilbirds/37/. Website accessed. March 25, 2015.

Natural Resources Conservation Service (NRCS). 2014. Online web soil survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Website accessed on December 2, 2014.

U.S. Air Force (USAF). 2012. Final Integrated Natural Resources Management Plan for Scott Air Force Base, *St. Clair County, Illinois*. February.

U.S. Department of Agriculture. 2015. Prescribed Burning Promotes Growth of Buffalo Clover (*Trifolium reflexum*). http://www.fs.fed.us/wildflowers/Rare_Plants/conservation/success/trifolium_reflexum_prescribedburning.shtml. Website accessed on March 25, 2015.

U.S. Fish and Wildlife Service (USFWS) 2002. Illinois Cave Amphipod (*Gammarus acherondytes*) Recovery Plan. September.

U.S. Fish and Wildlife Service (USFWS). 2007b. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. April.

U.S. Fish and Wildlife Service (USFWS) 2013. North Dakota Field Office, Endangered Species List: Least Tern (*Sterna antillarum*). http://www.fws.gov/northdakotafieldoffice/endspecies/species/least_tern.htm. Website accessed January 29, 2015.

U.S. Fish and Wildlife Service (USFWS). 2014a. National Wetland Inventory mapping. http://www.fws.gov/wetlands/data/mapper.HTML. Website accessed December 5, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014b. *Federally Listed Threatened and Endangered Species in Illinois*. September. http://www.fws.gov/midwest/endangered/lists/missouri-cty.html. Website accessed on December 4, 2014.

U.S. Fish and Wildlife Service (USFWS). 2014c. Species Profile: Decurrent false aster (*Boltonia decurrens*). July 2014. http://www.fws.gov/midwest/endangered/plants/decurrentfalseaster/index.html. Website accessed December 4, 2014.

U.S. Fish and Wildlife Service (USFWS) 2014d. Endangered Species: (Eastern Prairie Fringed Orchid (*Platanthera leucophaea*). http://www.fws.gov/midwest/endangered/plants/epfo.html. Website accessed January 29, 2015.

U.S. Fish and Wildlife (USFWS) 2014e. Endangered Species: Indiana Bat (*Myotis sodalis*). http://www.fws.gov/midwest/endangered/mammals/inba/index.html. July 2014. Website accessed December 4, 2014.

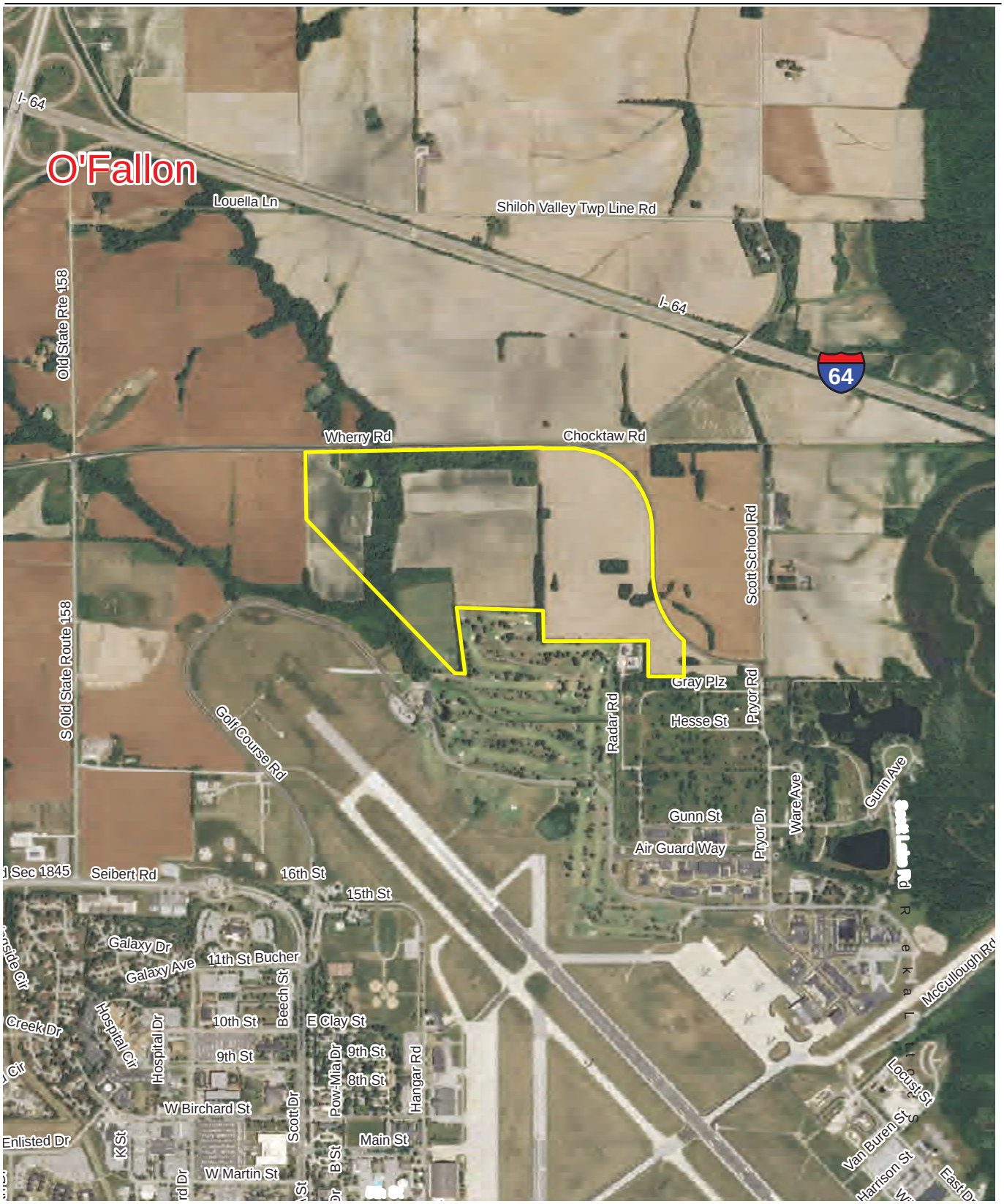
U.S. Fish and Wildlife (USFWS) 2014f. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html. Website accessed December 8, 2014.

U.S. Fish and Wildlife Service (USFWS) 2014g. IPAC-Information, Planning, and Conservation System. http://ecos.fws.gov/ipac. Website accessed December 1, 2014.

Walk, Jeffery. 2008. Status Review and Recovery for Grassland Raptors, Northern Harrier – *Circus cyaneus* and Short-eared Owl – *Asio flammeus*. Prepared for Illinois Nature Conservancy.

Walk, J. Mankowski, A. Esker, T. Cole, M. Alessi, M. 2010. The Illinois Barn Owl Recovery Plan – State Wildlife Grant Program T-35-P-1. November.

Figures



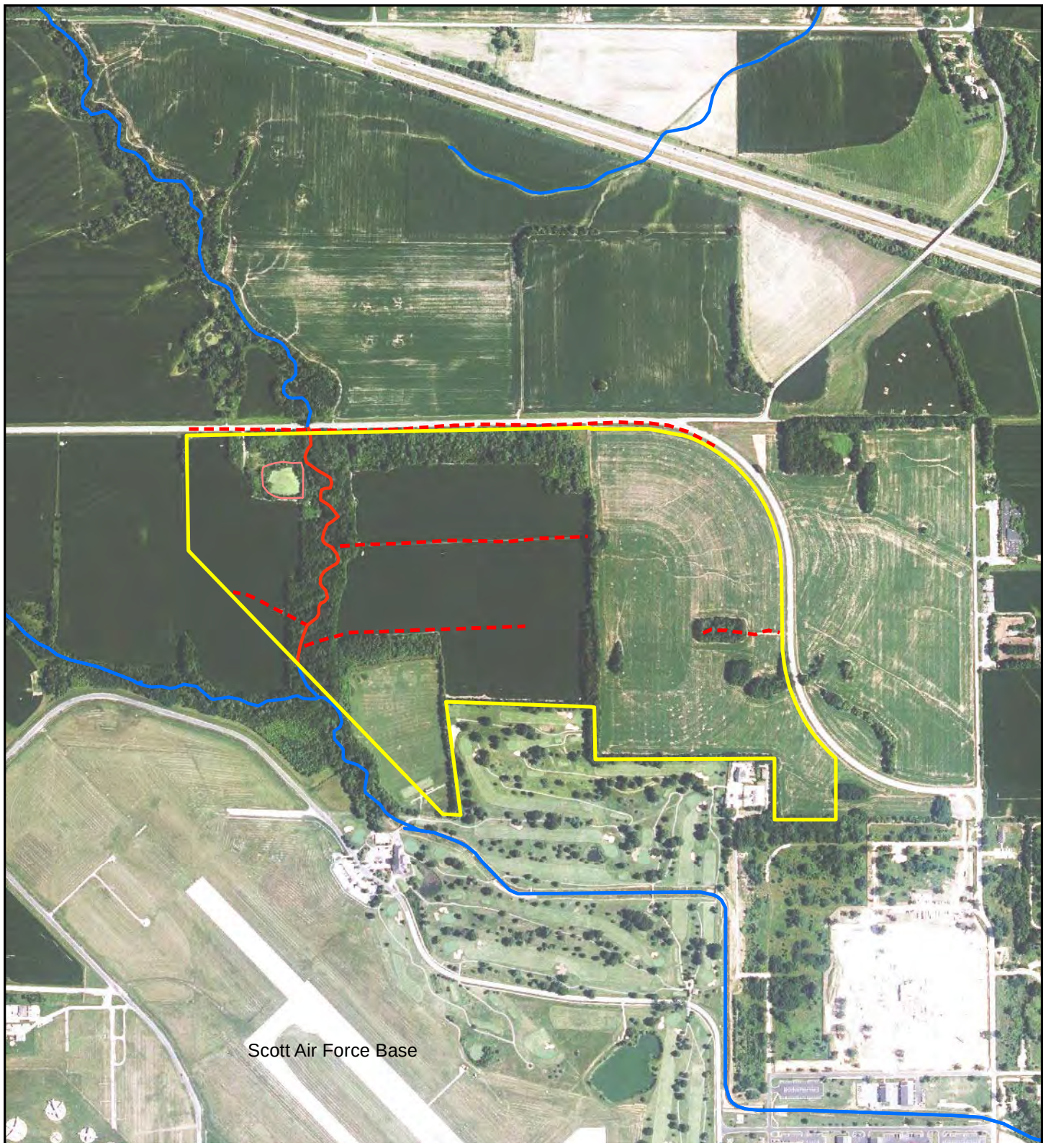
N

0 500 1,000 2,000 Feet

FIGURE 1
Subject Property
Biological Resource Report
St. Clair County, Illinois

ES1218141543O9SAC subject_property_stclair.ai 04-02-15 dash

CH2MHILL



Site Boundary

NHD Features:
Stream River

Site Visit Features:
Perennial Stream
Ephemeral Drainage
Pond

NHD- National Hydrography Dataset
NHD Source: U.S. Geological Survey (USGS)
Image Source: National Agriculture Imagery Program (NAIP) 2014

N

0 0.25 0.5 Miles

Note: A protocol delineation or jurisdictional determination has not been completed for water features identified.

FIGURE 2
St. Clair County Site, Wetlands and Surface Features
Biological Resource Report

CH2MHILL

Appendix A
Photo Log

PHOTO LOG

Project Name: National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois	
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 1

General Site Photo, Facing Southwest

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 2

Pond, Facing Northeast

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Claire County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 3

Agricultural Field on Eastern Portion of Property, Facing North

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Claire County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 4

Stream, Bisecting Property Flowing North to South, Facing South

Project Name:	National Geospatial-Intelligence-Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 5

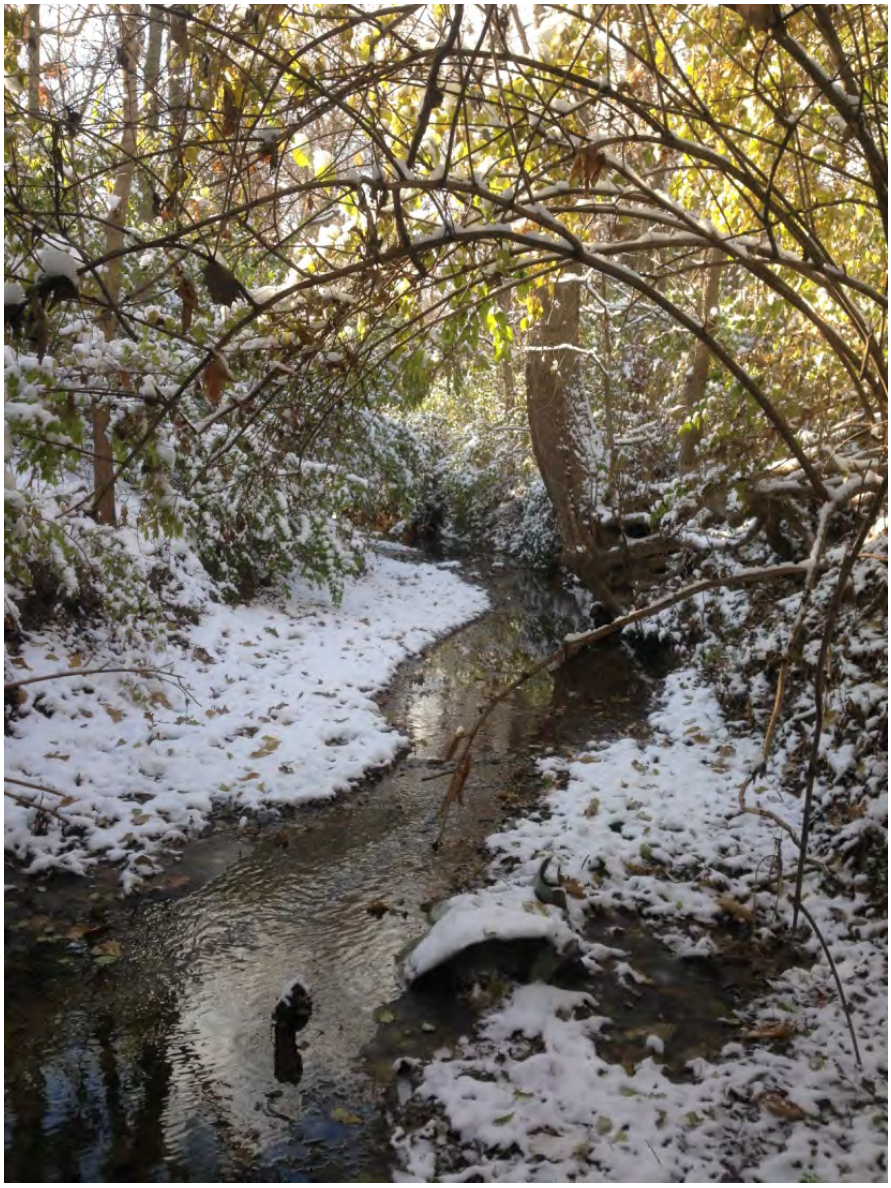
Tree with Exfoliating Bark in Forested Area

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 6

Example: Drainage Ditch in Agricultural Field, Facing West

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014



Photograph 7

Stream, Further South Downstream, Facing South

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 8

Example: Dead Tree (Snag) with Cavities

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 9

Drainage from Agricultural Field to Stream

Project Name:	National Geospatial-Intelligence Agency – St. Clair County Site, St. Clair County, Illinois
Task: Biological Resource Report	Taken by: Jesse Brown – November 17, 2014

Photograph 10

Example: Ephemeral Drainage, Northeast Corner of Property, Facing Northeast